A MEMBER OF ARTHUR YOUNG INTERNATIONAL

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Sessional Paper No. 523/84
2 Session, 20 Legislature

November 4, 1983

Mr. Rick Sloan
Project Director and Chairman
Alberta Tourism and Small Business
Northern Development Branch
2nd Floor, Provincial Building
9621 - 96 Avenue
Peace River, Alberta
TOH 2X0

Dear Sir:

We are pleased to present the Final Report for the study - The Development of New Agricultural Land in Northwestern Alberta. This report responds in full to our Terms of Reference (March 31, 1983) and reports on the research phases and tasks specified in the approved Study Design (April 22, 1983).

The study itself, the deliberations which preceded it, and the action which will follow it, constitute a very important chapter in the social and economic development of Northwestern Alberta. Not only have contentious issues and complex matters of high priority been addressed in some depth, but the study has involved the active participation of a significant proportion of the residents of this part of Alberta.

We have surveyed, and measured in quantitative terms the demand for agricultural land from several areas within and outside of Northwestern Alberta. This demand, quantified for the first time, has been delineated in terms of the source of the demand, the characteristics of the farmers looking for land, locational preferences (i.e. block or fringe development), the type of land in demand, and the prospective timing of that demand.

We have examined in some detail the many implications of meeting this demand for new agricultural lands. General benefit-cost assessments have been estimated for the farmers themselves and for established communities in Northwestern Alberta. The major direct costs and some of the direct benefits to the Provincial Government have been gauged. Finally, we have estimated some of the potential macroeconomic impacts across the Albertan economy.

Important conclusions have been reached regarding the interrelationship between forestry, fish and wildlife and further agricultural development. Likewise, we have arrived at a number of important conclusions on the nature of the agricultural economy in the region and on the contentious issue of the so-called "viability" of farming in Northwestern Alberta. Finally, we have conducted a review of the crown land disposition process (after posting) in the study area.

As indicated, this important project was characterized by extensive participation on the part of all interested parties. We want to thank you for your attention, cooperation and good humour throughout this complex assignment. Your commitment to project management, thorough research and team-work has contributed in no short measure to the success of this study.

We are indebted to the other Members of our Steering Committee:

- Mr. Carl Leary, Alberta Energy and Natural Resources (Alberta Forest Service)
- Mr. Frank Cardinal, Alberta Energy and Natural Resources (Fish and Wildlife)
- Mr. Gerry Graw, Alberta Energy and Natural Resources (Public Lands)
- Mr. Brian Christie, Alberta Energy and Natural Resources (Resource Evaluation and Planning)
- Mr. Ed Wyldman, Alberta Energy and Natural Resources (replacement for Mr. Christie)

- Mr. Eric Horton, Alberta Agriculture
- Mr. Brian Colgan, Alberta Agriculture
- Mr. Alfred Birch, Alberta Agriculture (replacement for Mr. Colgan)
- Mr. Gerry Archibald, Alberta Tourism and Small Business (Northern Development Branch)
- Mr. Chris Weiss, Farmer
- Mr. Eugene Dextrase, Farmer
- Mr. Al Menice, Farmer

The candid, energetic and conscientious input by all Members of the Steering Committee ensured that the variety of perspectives which characterized the subject under study, were fully addressed. We are also indebted to many Provincial government representatives in Edmonton.

Fundamental to the success of the study, its credibility and especially its future use and value, has been the participation of several hundred residents of Northwestern Alberta. The willing input of over 600 farmers, community representatives, farm organization interests, forestry business representatives, and many others, constitutes the basis of the entire study. We want to express our sincere appreciation of their time, trust and cooperation.

This has been a complex, challenging and exciting project, indicative of the social, political, environmental and economic dimensions of the subject under study. We have enjoyed it and want to thank you for entrusting this assignment to us. We look forward to the early and extensive use of this Final Report and the other outputs from this assignment and hope that we can contribute further to the development of Northwestern Alberta.

Yours truly,

David J.A. Douglas
Partner

c.c. Marv Anderson
- Marv Anderson & Associates

Doug M. Graham
Richard A. Nuxoll
Peter J. Laipnieks
- Woods Gordon

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A NOTE ON REPORT FORMAT

This is a large, complex report covering not only many topics but many aspects of individual topics which were addressed in this assignment. The format used in this document allows the reader to read individual parts as relatively self-contained sub-reports. It also allows the reader to access supplementary appendices relating to individual sections. The page, table and appendices numbering system allows the reader to identify and locate these with ease.

The Format

The report is divided into Parts (e.g. Part 3).

The Parts are divided into Sections (e.g. Section 3.1).

Sections are sub-divided by major heading (e.g. 3.1.2) and minor heading (e.g. 3.1.2.4).

Tables are numbered so as to locate them by Part and Section (e.g. Table 3.1.4, which means Table 4 in Section 1 of Part 3).

Appendices are so identified (i.e. "A") and relate to a particular Part and Section of the report (e.g. Appendix - A.3.1).

Tables in Appendices are similarly identified (e.g. Table (A.3.1)-4).

Pagination in the body of the report is for text only and is done on the basis of the report's Parts (e.g. Part 2 will go from page 2.1 to page 2.24).

Pagination for text in the Appendices is based on the conventional procedure.

SECTION 1.1

STUDY CONTEXT

SECTION 1.1

STUDY CONTEXT

The management of the land resource is a major factor in daily living in Northern Alberta. In terms of a socio-economic and political entity, Northern Alberta has become what it is today, largely because of the characteristics and potentials of its vast and varied physical environment. Agriculture has, especially since the 1930's, become a very significant facet in the life and economy of this part of Alberta. The question of the social and economic costs and benefits of opening up new agricultural lands, and how these lands might be opened up, is currently being addressed by the Northern Alberta Development Council (NADC).

Many factors in the Region's history have influenced the agricultural sector's prospects and its impacts on the physical and social environment. The introduction of Red Fife wheat in the 1870's and the Homestead Act (1870) spurred on the settlement of Alberta. As early as 1883-85 wheat was grown in the Dunvegan area, then at Old Wife's Lake and Sharfsbury (1886).

With the expansion of the C.P.R. in the early 1900's, the construction of a railway from Edmonton, through Dunvegan to British Columbia (1916), the severe droughts in Southern Alberta and the Order-in-Council in Ottawa (1923) providing one quarter section as a second homestead to drought-impacted farmers, settlement in the Peace Country expanded rapidly. Population grew from 2,000 in 1911 to some 60,000 in 1930. By this time the Region had a good reputation for high quality seed grain. Crop expansion now included wheat, oats, peas, brome and timothy.

Gradually the recognition of environmental constraints (e.g. on the Grey Forest soil types, in drainage, micro-climates) and land management requirements made themselves felt.

In 1939 an agricultural land lease policy replaced homesteading (i.e. 20 year renewable leases with the option to purchase after 10 years). The then Department of Lands and Mines carried out fairly comprehensive cost analyses prior to any new land development. In 1948 an Order-in-Council (113/48) set up the Green Area, separating forestry lands from the settled areas, thereby excluding all agricultural uses other than grazing. The role of the large research centres in Northwestern Alberta (Beaverlodge and Fort Vermilion) has expanded over the years.

In addition to the physical environmental constraints, concern has grown regarding the real costs and benefits (to all parties) of expanding the agricultural area in Northwestern Alberta. This concern has been heightened by:

(a) the lack of definitive evidence on the extent of demand for new land,

(b) the lack of conclusive agricultural economic analysis on the viability of new operations, and

(c) some evidence that Alberta is maintaining a costly agricultural land base by exchanging high quality (CLI - Classes 1 to 3) areas in Southern Alberta, for newly opened but poorer lands (CLI - Classes 4 to 6 and organic) in Northern Alberta.

The NADC has provided a major forum for the discussion of these and related issues.

A major discussion paper "Agriculture in Northern Alberta" was released in September 1978 and an important conference, "Agriculture North Seminar" was held in November 1978. In 1980 Dr. Hugh Horner was commissioned by Alberta Economic Development to prepare a strategy for the meat industry in Alberta throughout the 1980's and to examine the prospects for the agricultural processing sector. In his report, A Review of the Meat Industry in Alberta (1981) the author recommended that an additional 10 million acres of land be made available for agricultural production in the province over a ten year period. Around the same time the Water Advisory Committee (the Kroeger Committee) recommended that an inventory of lands in the province which could benefit in terms of agricultural production, from drainage and irrigation, be prepared.

With the release of the NADC's report "The Development of New Agriculture Land in Northern Alberta" in December 1982 the Northern Development Branch compiled the prevailing perspectives on the complex issue of opening up new agricultural lands. This report arrayed some of the evidence on agricultural developments to date, the varying and often conflicting viewpoints on further agricultural expansion, and some of the concerns with the land disposal process itself. Further, it identified the need to determine the costs and benefits of large block development versus incremental land development in Northern Alberta.

The Environment Council of Alberta (ECA) prepared draft terms of reference for public hearings on the maintenance of Alberta's agricultural land base, in early 1983. Following review by the Province, the Council was asked to hold hearings "on maintaining and expanding the agricultural land base in Alberta" (ECA - News Release, May 2, 1983).

In order to address these and related issues, a Steering Committee was set up by the NADC, consisting of representatives from various Provincial departments and a number of farmers active in Northwestern Alberta. Terms of reference were prepared for a study on the development of new agricultural land in Northwestern Alberta (February 21, 1983). Qualified consultants were invited to submit proposals to undertake this assignment. On March 23, 1983 Woods Gordon, in association with Marv Anderson, were retained and authorized to proceed with the study. Amended Terms of Reference were concluded on March 31, 1983 and the detailed Study Design was approved on April 22, 1983. The study was completed by October 24, 1983.

SECTION 1.2

STUDY OBJECTIVES

SECTION 1.2
STUDY OBJECTIVES

The amended Terms of Reference (March 31, 1983) for this project clearly set out the study's objectives. They are as follows:

"1. To survey farmers and prospective farmers located primarily in the western agricultural region of northern Alberta to determine the present and future demand for new land.

2. To prepare cost-benefit analyses from the viewpoint of:

   (a) the farmer's perspective:

      - middle term (10-15 years)
      - long term (40-50 years)

   (b) from the community's perspective:

      - middle term (10-15 years)
      - long term (40-50 years)

   (c) from the province's perspective:

      - middle term (10-15 years)
      - long term (40-50 years)

3. To describe and review the current mechanisms for agricultural land development focussing primarily upon services after the decision to post particular land has been made.

4. To examine the interrelationship issues between the Agriculture and the Forestry industries."

Within the context of these objectives the consultant was charged with undertaking specific tasks. These are set out below:

"1. To conduct an extensive survey of farmers and prospective farmers within the four study areas identified on the attached map (see opposite). Consultants should consider the use of a combination of mail-out techniques, telephone interviews, and personal interviews.

The survey should address the following dimensions:

(a) relevant biographical and financial data (e.g., full-time/part-time; income from agriculture, forestry, oil and gas, etc.)

(b) numbers of years of farming experience

(c) history of individual farm development

(d) number of farmers requiring additional farm land

(e) location and ownership of new land from the farmers' perspective

(f) number of acres of land on farm not currently developed

(g) reasons for land requirements:

- expansion
- family unit expansion
- relocation

(h) opinions about cost and benefits to individual farmers over both the short and long term

(i) intended use of new farm land (grain - cattle)

(j) distance farmer is prepared to travel from farmstead to new land

(k) opinions about the general and local need and desirability for further land development

(l) major impediments to individual farmers regarding development

(m) suggestions for improvements that would remove or reduce impediments.

Consultants are to design a preliminary questionnaire in their proposal.

2. To carry out an extensive program of interviews with the following:

   (a) key government personnel in Agriculture, Energy and Natural Resources, Environment, Municipal Affairs, Transportation, etc.

   (b) community representatives and leaders of various stakeholder organizations; and

   (c) municipal government representatives in the North.

3. To prepare a series of cost-benefit analyses that includes:

(a) Costs and Benefits to the Individual Farmers:

This analysis should primarily review the costs of acquiring and developing new farm land compared to the benefits derived from new production. Key secondary costs and benefits should also be included.

(b) Costs and Benefits to the Community:

This analysis should review the cost and benefit to the community or regions; e.g., factors like threshold levels for increased services and infrastructure development should be reviewed.

(c) Costs and Benefits for the Provincial Economy:

This analysis should primarily encompass the general costs and benefits to the provincial government and economy.

Each analysis should cover economic, social, and other costs and benefits over the middle and long term.

4. Based on both the farmer demand survey, key informant interviews, and the cost-benefit analysis, the consultant will be required to put forward one or more alternative scenarios aimed at improving the implementation process for development. These scenarios should include a review of existing governmental services, and the strengths and weaknesses of the existing process. The consultant should propose a series of recommendations in keeping with the development scenarios proposed.

5. To conduct a series of interviews and conduct a literature review that would assist in generally presenting the views of northerners concerning the need for a diverse forestry and agricultural economy in Northwestern Alberta.

6. To focus the study on Northwestern Alberta. The Consultants are encouraged to focus their farmer demand survey on several specific districts or regions as described on the attached map.

7. To prepare a short synopsis on the historical development of land in Northwestern Alberta. This discussion might include statistics indicating growth over the past 40-50 years. A section on how farmers have typically developed land could also be included."

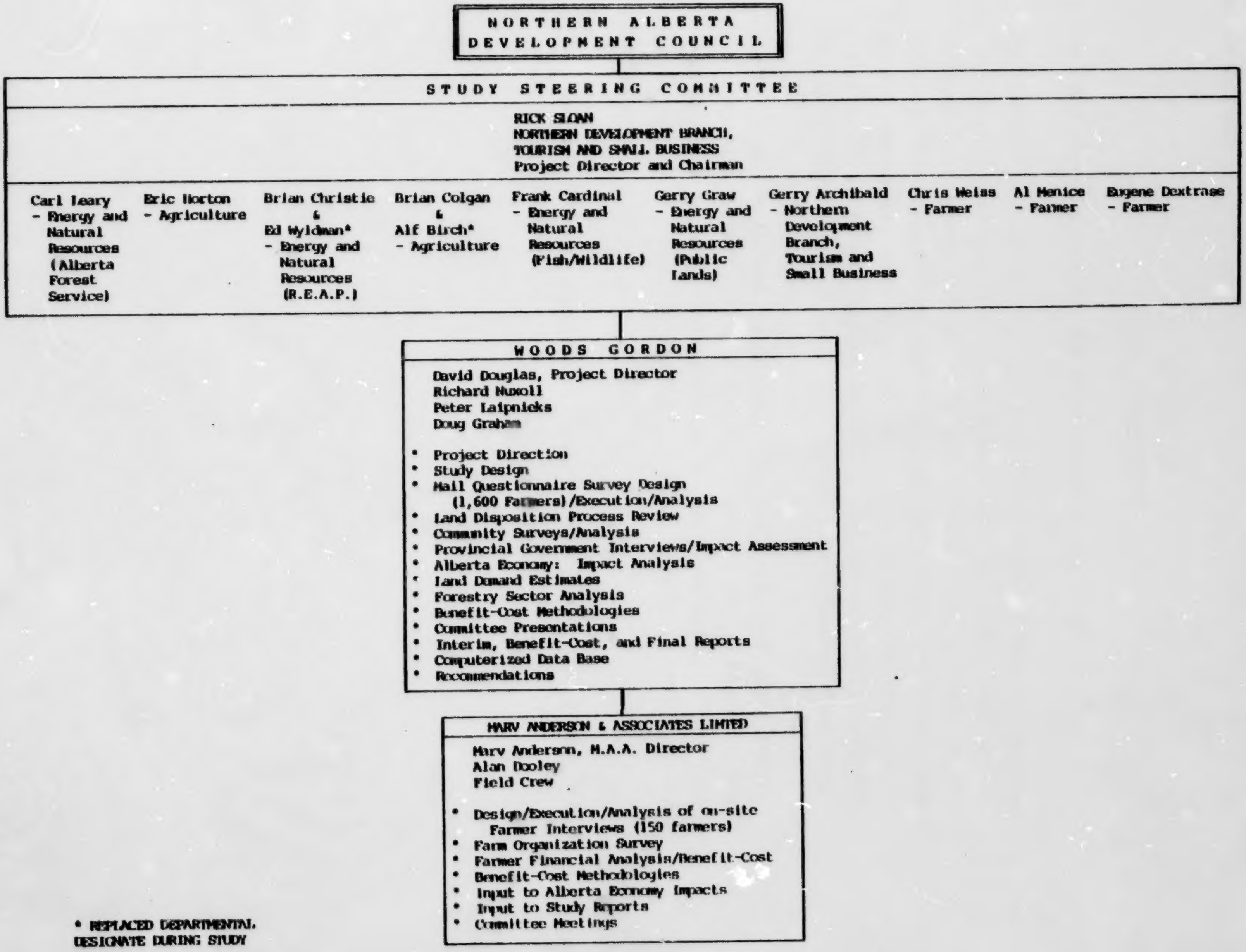
The Terms of Reference directed that:

> "It is not the intent of the study to specifically address the issues of land capability, availability or alternate uses."

SECTION 1.3

STUDY ORGANIZATION

STUDY ORGANIZATION



NORTHERN ALBERTA DEVELOPMENT COUNCIL

STUDY STEERING COMMITTEE

RICK SLOAN
NORTHERN DEVELOPMENT BRANCH,
TOURISM AND SMALL BUSINESS
Project Director and Chairman

Carl Leary
- Energy and Natural Resources (Alberta Forest Service)

Eric Horton
- Agriculture

Brian Christie & Ed Wyldman*
- Energy and Natural Resources (R.E.A.P.)

Brian Colgan & Alf Birch*
- Agriculture

Frank Cardinal
- Energy and Natural Resources (Fish/Wildlife)

Gerry Graw
- Energy and Natural Resources (Public Lands)

Gerry Archibald
- Northern Development Branch, Tourism and Small Business

Chris Weiss
- Farmer

Al Menice
- Farmer

Eugene Dextrase
- Farmer

WOODS GORDON

David Douglas, Project Director
Richard Nuxoll
Peter Laipnicks
Doug Graham

- Project Direction
- Study Design
- Mail Questionnaire Survey Design (1,600 Farmers)/Execution/Analysis
- Land Disposition Process Review
- Community Surveys/Analysis
- Provincial Government Interviews/Impact Assessment
- Alberta Economy: Impact Analysis
- Land Demand Estimates
- Forestry Sector Analysis
- Benefit-Cost Methodologies
- Committee Presentations
- Interim, Benefit-Cost, and Final Reports
- Computerized Data Base
- Recommendations

MARV ANDERSON & ASSOCIATES LIMITED

Marv Anderson, M.A.A. Director
Alan Dooley
Field Crew

- Design/Execution/Analysis of on-site Farmer Interviews (150 farmers)
- Farm Organization Survey
- Farmer Financial Analysis/Benefit-Cost
- Benefit-Cost Methodologies
- Input to Alberta Economy Impacts
- Input to Study Reports
- Committee Meetings

* REPLACED DEPARTMENTAL DESIGNATE DURING STUDY

SECTION 1.3

STUDY ORGANIZATION

The chart opposite displays the organization of the study.

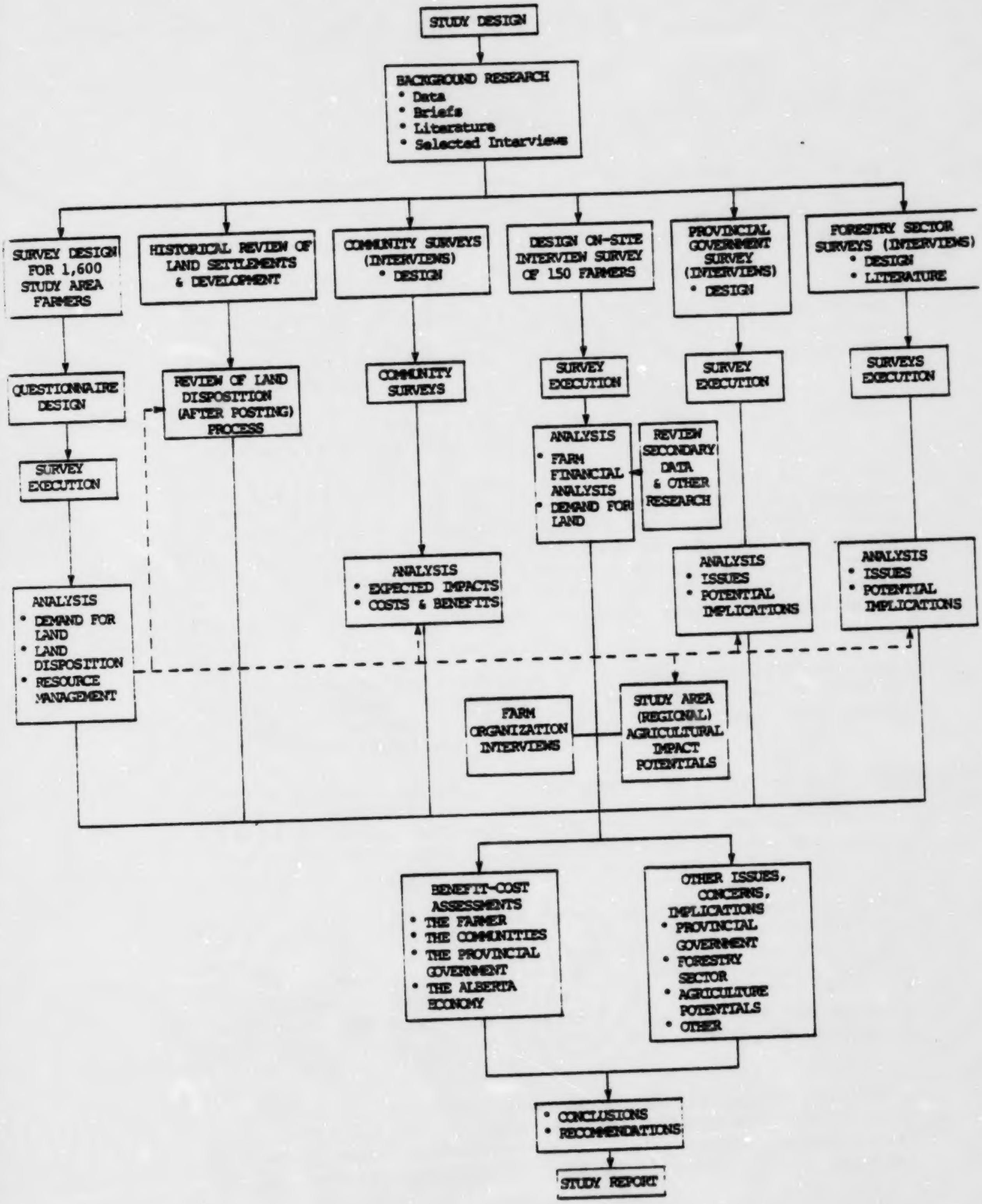
The project was managed by the Northern Development Branch, Alberta Tourism and Small Business (Peace River) with Mr. Rick Sloan, Senior Northern Development Officer as Project Director and Chairman of the Steering Committee. The Departments of Agriculture and Energy and Natural Resources were also represented by senior officials. In addition, three farmers active in farming and agricultural development throughout Northwestern Alberta, were Members of the Steering Committee.

Woods Gordon, Management Consultants, was the prime contractor responsible for the conduct of this assignment and all study outputs. Marv Anderson & Associates Limited acted as sub-consultants. The chart summarizes the principal, overlapping task responsibilities of the consultants.

The Northern Alberta Development Council (NADC) was the client and official recipient of the study's Final Report.

SECTION 1.4

STUDY PROCESS


STUDY DESIGN
BACKGROUND RESEARCH
• Data
• Briefs
• Literature
• Selected Interviews
SURVEY DESIGN FOR 1,600 STUDY AREA FARMERS
HISTORICAL REVIEW OF LAND SETTLEMENTS & DEVELOPMENT
COMMUNITY SURVEYS (INTERVIEWS)
• DESIGN
DESIGN ON-SITE INTERVIEW SURVEY OF 150 FARMERS
PROVINCIAL GOVERNMENT SURVEY (INTERVIEWS)
• DESIGN
FORESTRY SECTOR SURVEYS (INTERVIEWS)
• DESIGN
• LITERATURE
QUESTIONNAIRE DESIGN
REVIEW OF LAND DISPOSITION (AFTER POSTING) PROCESS
COMMUNITY SURVEYS
SURVEY EXECUTION
SURVEY EXECUTION
SURVEYS EXECUTION
SURVEY EXECUTION
ANALYSIS
• FARM FINANCIAL ANALYSIS
• DEMAND FOR LAND
REVIEW SECONDARY DATA & OTHER RESEARCH
ANALYSIS
• EXPECTED IMPACTS
• COSTS & BENEFITS
ANALYSIS
• ISSUES
• POTENTIAL IMPLICATIONS
ANALYSIS
• ISSUES
• POTENTIAL IMPLICATIONS
ANALYSIS
• DEMAND FOR LAND
• LAND DISPOSITION
• RESOURCE MANAGEMENT
FARM ORGANIZATION INTERVIEWS
STUDY AREA (REGIONAL) AGRICULTURAL IMPACT POTENTIALS
BENEFIT-COST ASSESSMENTS
• THE FARMER
• THE COMMUNITIES
• THE PROVINCIAL GOVERNMENT
• THE ALBERTA ECONOMY
OTHER ISSUES, CONCERNS, IMPLICATIONS
• PROVINCIAL GOVERNMENT
• FORESTRY SECTOR
• AGRICULTURE POTENTIALS
• OTHER
• CONCLUSIONS
• RECOMMENDATIONS
STUDY REPORT

THE STUDY PROCESS-GENERAL OUTLINE

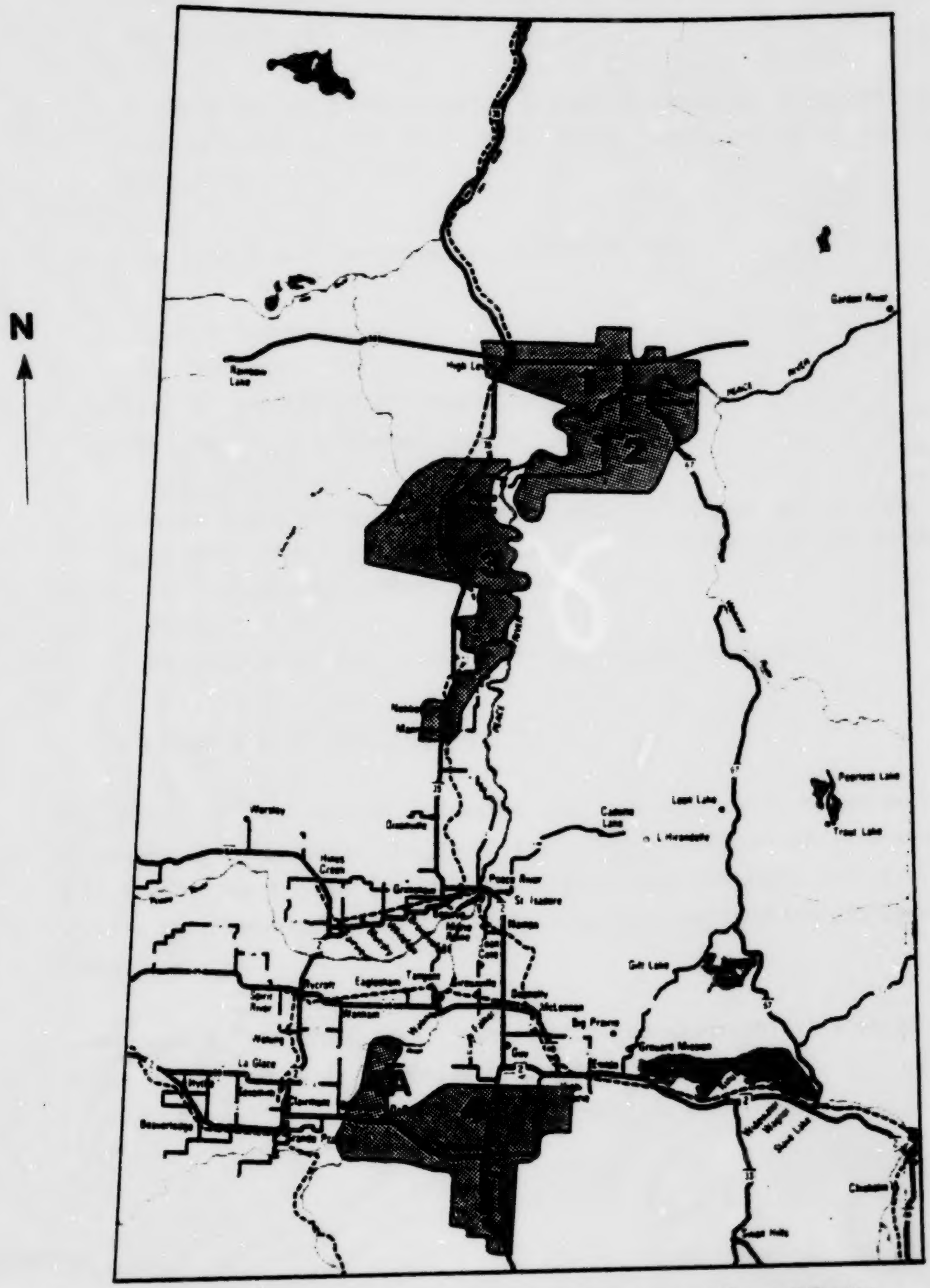
SECTION 1.4

STUDY PROCESS

The chart opposite provides an outline illustration of the general study process. For further details consult the approved Study Design (April 22, 1983). The seven month study consisted of eight streams of survey, research and analytical activity. They included the following:

- the preparation of a detailed Study Design, dividing the project into some sixty (60) individual tasks with full activity description and a detailed schedule. This served as the project management document.
- the background literature and data research together with preliminary start-up interviews.
- a mailed questionnaire survey of some sixteen hundred (1,600) farmers resident in the four (4)study area zones. The response rate was excellent, in terms of quality and quantity (40%). This provided the larger part of the data base for the entire study and led to an assessment of the potential demand for land, farmers views on the land disposition (after posting) process, critical inputs on resources management and development and many other outputs.
- a thorough review and assessment of the after-posting disposition process for crown land through a literature review, Provincial officials interviews, interviews with Agricultural Development Committee representatives and input from the farmer surveys.
- a field programme of on-site interviews with municipal and other community representatives from a cross-section of eight (8) communities across Northwestern Alberta. This provided critical input to determine other local perceptions on the land development issue and the record of community-level impacts.
- an on-site personal interview survey with one hundred and fifty (150) farmers in all four study area zones. This provided the critical detailed data on farm financial, production and management issues for an analysis of the real world financial feasibility of farming in the study area. It also provided (with the land demand estimates) the base data for estimating new agricultural output potentials for the study area (leading to an Alberta economy impact).
- a survey of key Provincial government agencies (e.g. Transportation, Energy and Natural Resources, Agriculture) who through their programmes would be impacted (e.g. staff, capital expenditures) due to further agricultural land development. This provided

FARMER DEMAND SURVEY - STUDY AREAS


N
Rainbow Lake
High Level
Garden River
PEACE RIVER
Worsley
Hines Creek
Grimshaw
Peace River
St Isadore
Nampa
Cadotte Lake
Loon Lake
Peerless Lake
Trout Lake
Gift Lake
Spirit River
Rycroft
Eaglesham
Big Prairie
Grouard Mission
La Glace
Beaverlodge
Swan Hills
Chisholm
35
67
2
33
1
2

Western Section of Northern Alberta Development Council Region

km
0
40
80

valuable output on many implications, but also for the eventual benefit-cost assessment.

- a survey of the forestry sector including the major firms dominating activity in the study area, and a cross-section of smaller operators.

- the benefit-cost assessments carried out for:

  (a) the farmer,
  (b) the communities,
  (c) the Provincial government, and
  (d) the Alberta economy itself.

  These broad estimates provide a good reading on the balance of potential costs and benefits (a) to each party, and (b) between the four interest groups.

- preparation of study conclusions and recommendations.

- preparation of the Final Report.

The study process was an intensive one, characterized by extensive, hands-on work throughout the study area, a great number of interviews, extensive input by the area's farmers and other interests and a close working relationship between the study Steering Committee and the consultants.

A map showing the study area, highlighting the geographical area of the farmer demand survey is presented on the page opposite.

SECTION 1.5

SUMMARY AND CONCLUSIONS

TABLE 1.5.1

LOCAL FARMER DEMAND - ACRES*

		1983-86	1986-91	1991+
Crown Land	- Grain	157,859	68,830	26,566
	- Forage	26,847	10,818	4,730
	- Improved Grazing	67,102	25,358	13,857
Patented	- Grain	101,232	58,606	30,657
	- Forage	26,098	16,327	19,200
	- Improved Grazing	9,907	9,811	9,917
TOTAL		389,045	189,750	104,987
ANNUAL DEMAND		129,681	37,951	10,498**

OTHER APPLICANT DEMAND FOR CROWN LAND - ACRES**

		1983-86	1986-91	1991+
Crown Land	- Grain	39,390	26,117	13,517
	- Forage	8,522	6,753	5,236
	- Improved Grazing	11,162	12,233	5,994
Patented	- Grain	19,020	6,708	7,584
	- Forage	7,207	4,039	979
	- Improved Grazing	2,789	1,817	--
TOTAL		88,090	57,720	35,127
ANNUAL DEMAND		29,363	11,544	3,513**

LOCAL FARMER'S FAMILY DEMAND - ACRES

	1983-86	1986-91	1991+
Family Member 1	236,302	104,528	43,431
Family Member 2	85,170	74,717	26,576
Family Member 3	35,145	28,891	22,581
Family Member 4	27,507	17,887	17,223
TOTAL	384,124	226,113	109,811
ANNUAL DEMAND	128,041	45,223	10,981***

*"Local Farmers" are the 1,600 residents in the five study area zones (1, 2, 3, 4 and 4A) who were engaged in some form of agriculture in 1982-83 and who were surveyed for this study.

**Applicants resident outside of the study area.

***Used ten year period to determine average.

SOURCE: Woods Gordon (1983)

SECTION 1.5
SUMMARY AND CONCLUSIONS

INTRODUCTION

In this section we summarize the principal findings of the Study. The information that follows is an aggregation of all the detailed information presented throughout the Report and is not a substitute for this detail. For a complete itemization and explanation of the findings the reader is referred to the body of this Report.

1.5.1 THE DEMAND FOR AGRICULTURAL LAND

1.5.1.1 Demand From All Sources

Table 1.5.1 opposite presents our conclusions on the demand for crown land for agricultural purposes in the study area over the next 20 years, by expected land use, timing and source (i.e. local farmer, his family, other crown land applicants).

- An average annual demand for crown land of some 154,000 acres is expected over the next 20 years from the study area.

1.5.1.2 The Farmer's Survey

The principal summary points and conclusions from our survey of 1,600 farmers in the study area are:

Farmer Characteristics

- age of the farmer is normally distributed but with younger farmers in the north (i.e. Zone 1 and 2)
- the average farming experience is 13.86 years with the zonal breakdown as 1 - 13.06; 2 - 12.93; 3 - 16.20 and 4 - 13.63
- the average farm size is approximately 1 1/2 sections with approximately 75% owned and 25% leased; there are major zonal differ-

ences in the average farm size but ownership rates are relatively stable

- on the average farm, which is approximately 950 acres, 610 acres are cultivated and 340 acres are unimproved
- approximately one-third of the respondents' present farm size has been cleared since they started farming it, but for Zone 1 and 2, this figure is significantly higher (i.e. 45-50%)
- approximately 18.4% of the respondents' present farm is available for further clearing; on a zonal basis, the percentages are 1 - 16.5%; 2 - 18.4%; 3 - 15.1% and 4 - 20.3%
- very few farmers are completely dependent on farm income for their livelihood but rely on a variety of income sources for their livelihood (e.g. forestry, service industry, oil and gas)
- farming contributes 81-100% of family income for only about one quarter of young farmers (i.e. less than 5 years in farming in the area), whereas it accounts for about 40% of family income for older farmers (i.e. those with over 16 years farming experience in the area). Off-farm income is critical to all farmers, especially the beginner farmer
- the larger the farm unit the greater the dependency on agriculture as a source of family income
- most farmers received most of their farm production from grain production, with livestock production providing a significant amount of farm income in certain areas (i.e. Zone 4)
- the average distance to grain delivery points was 68 km. but this increased to an average of 107 km. in Zone 2 while farmers in Zone 4 had to travel only an average of 18 km.

The Demand for Land

- approximately 80% of respondents have applied for crown land while 61% have purchased crown land; there are major zonal differences regarding crown land purchase (i.e. Zone 1 - 70.6%; 2 - 69.0%; 3 - 51.8% and 4 - 59.2%)
- the larger the farm unit, the greater the probability of the farmer having applied for crown land
- the factors that have caused the highest degree of difficulty in purchasing and developing crown land are the 'high cost of credit' and the 'high cost of clearing and breaking land'

- the 'cost of purchasing land' and the 'process' were the two factors causing the most difficulty in acquiring crown land
- the 'high cost of acquiring developed land' was the most important factor in their decision to apply for crown land
- the provision of roads and services is only a moderate concern with farmers who have purchased crown land
- distance to elevators is a moderate to high concern for two thirds of the farmers who have purchased crown land
- approximately 80% of respondents plan to increase production, with the expansion of the cultivated area on their present farm and the purchase of undeveloped crown land the primary ways of doing it
- the larger the farm unit, the greater the likelihood of increased farm production
- the longer farmers farm the area, the greater the likelihood that more crown land will be demanded. Only 58% of farmers with less than 5 years experience require additional crown land, whereas some 70-87% of those with over 11 years experience require crown land
- however, there is not a clear relationship between farm size and the acquisition of crown land as the principal means of expanding production
- about one quarter of the farmers who plan to increase production, will do so without the purchase of crown land
- for farmers that are very dependent on farming (81-100% of family income) there is less indication that they plan to increase production. This suggests that these farmers are more satisfied with their income situation than other farmers
- farmers with less than 20% of their income from farming also indicated less likelihood that they would increase production
- the beginner farmer (under 20 years of age) and the mature farmer (41-60 years old) are proportionally the strongest proponents of crown land development for increased farm production
- very few farmers (3.0%) want to relocate but would rather expand their present farm and are willing to travel an average of 16 km. to do so; the smaller the farming unit the greater the tendency to relocate
- the demand for land is concentrated in the 1983-86 period with the majority of demand for grain land (i.e. 85-89% of all demand)

except in Zone 4 (i.e. 46.3%) where there is an extremely high demand (i.e. 39.8%) for improved grazing land

- there is a very significant portion of the present demand from the farmer's family with a majority of the demand in the near future, possibly indicating that the family members are now in the market for additional land

- there was a very strong endorsement from the respondents for the future development of crown land

Forestry and Other Resources

- most respondents (77%), across all age groups, feel forestry to be important to their local economy with the north part of the Peace Country (i.e. Zone 1 and 2) giving almost unanimous recognition of forestry's importance to their economies

- it is noteworthy that the vast majority (78%) of farmers who plan to increase production, ranked the importance of forestry in their local economy as "high"

- 30% of respondents indicated that not enough timber is being devoted to farmer use; on a zonal basis the percentages were: 1 - 38.0%; 2 - 24.3%; 3 - 20.6% and 4 - 33.2%

- the two major benefits of the forestry resource are off-farm employment and farmer wood supply (no zonal differences)

- only 14.1% of respondents indicated they received no benefits from the forestry resource but there were major zonal differences (i.e. Zone 1 - 24.3%; 2 - 4.3%; 3 - 13.6% and 4 - 15.4%)

- farmers were willing to travel an average of 37 km. to harvest their own timber supply

- approximately two-thirds of respondents felt fish and wildlife was important to their local economy with the major benefits being recreation and food supply

- there was a large amount of indecision on the question of whether game ranching could be commercially viable

- the activities that were thought to have the greatest chance of commercial success are big game ranching followed by fur farming; fish farming was given recognition in Zones 2 and 4

- the respondents were split on the question of whether outdoor recreation opportunities should be expanded, except in Zone 1 where it was given a very strong endorsement (86%)

TABLE 1.5.2

SUMMARY OF THE BENEFITS AND COSTS TO THE FARMER AND THE COMMUNITY AS A RESULT OF OPENING-UP 154,000 ACRES OF LAND PER YEAR FOR 20 YEARS FOR AGRICULTURAL PURPOSES

(5% Discount Rate: $M)

Time Period	Estimates of Farmer Benefit/Cost Ratio	Estimates of Community Benefit/Cost Ratio
1	--	4.47
10	.51	2.20
20	1.00	1.88
50	1.81	1.63

TABLE 1.5.3

SUMMARY OF THE DIRECT COSTS AND REVENUES TO THE PROVINCIAL GOVERNMENT AS A RESULT OF OPENING-UP 154,000 ACRES OF LAND PER YEAR FOR AGRICULTURAL PURPOSES

(5% Discount Rate: $M)

Time Period	Total Costs	Total Revenue
1	30,887	10,780
10	352,213	83,754
20	523,967	134,827
50	663,634	-

Note: The figures for the Provincial Government only include direct costs and revenues and exclude taxes, royalties and other indirect revenues pursuant to agricultural and related developments.

- the two recreation activities that farmers would like to see developed are day use areas and water access for fishing except in Zone 4 where fish stocking was given top ranking

1.5.1.3 Other Crown Land Applicant Survey

From our survey of over 200 other crown land applicants (outside of the study area) this section describes the demand characteristics:

- most of the applicants are relatively young (i.e. 21-40 age group)
- 85% of applicants have farming experience or are currently farming
- the primary reason for applying for crown land was to expand their present farm unit
- most of the demand is for crown land for grain production in the 1983-86 period
- approximately 30% said anywhere in Northwestern Alberta would suffice as a place to farm but more importantly the other 70% were very specific about the location where they wanted land
- regarding the factors of development, the highest degree of difficulty was with the high cost of credit followed by the high cost of clearing and breaking land
- the high cost of acquiring developed land was the primary reason the respondents applied for crown land
- the process of application (i.e. the way notice was given, the time taken, the appeal process) caused the greatest problem for the applicants in applying for crown land
- most respondents indicated that land should be made available by opening areas adjacent to present agricultural lands.

1.5.2 BENEFIT/COST ASSESSMENT - GENERAL

Tables 1.5.2 and 1.5.3 opposite presents our assessment of economic benefits and costs based on the estimated demand for 154,000 acres of crown land for agriculture per year, for 20 years. The cost and benefit (revenue) figures are presented for three of the four components investigated; the farmer, the community, and the Provincial government. The fourth component, the Albertan economy, has been assessed in terms of gross benefits (value added production). The benefit/cost ratios must be interpreted as broad orders of magnitude. The relative difference between costs and benefits and between the ratios for different sectors is the important measure.

For the farmer, the benefit/cost ratio indicates that farming will not be economically beneficial until year 20. For the average established community, economic benefits outweigh costs almost 4.5 to 1 in year 1, indicating that the communities benefit from agriculture land expansion immediately and to a very large degree. On the other hand, direct costs outweigh direct revenues to the Provincial Government throughout all years in a long term period (up to 50 years). Clearly the communities receive the majority of the economic benefits and the Provincial Government is responsible for the larger proportion of the costs incurred. The relative benefits to the farmer become the largest at year 50, where they surpass the benefits to the community.

The primary reason why it takes from 20-50 years for the farmers to start realizing benefits is due to the large up-front and early capital investments they must incur. At the same time their cash-flow is not as healthy as it becomes later on. In terms of cash-flow, it is primarily for this reason that off-farm employment is so critical to the farmer in his first 20 years of operation.

The reason for the decreasing benefits to the community is related to the relative increases in both the benefit and cost stream. The cost stream increases are larger. However, the absolute economic benefits are more significant which is why the benefit/cost ratio remains greater than 1. Even if the benefit and cost streams were to be taken out even further in time, the ratio would always be greater than 1 because the cost stream calculation is a function of the benefit stream (and is less than 1).

TABLE 1.5.4

ESTIMATES OF NET (ECONOMIC) BENEFITS
AS A RESULT OF OPENING-UP 154,000 ACRES
OF LAND PER YEAR FOR 20 YEARS FOR AGRICULTURAL PURPOSES

(5% Discount Rate)

Time Period	Estimates of Net (Economic Benefits Per Acre to the Farmer	Estimates of Net (Economic) Benefit Per Acre to the Communities
1	-$174.32	+$150.26
10	- 122.68	+ 155.95
20	+ .78	+ 154.32
50	+ 238.37	+ 222.92

TABLE 1.5.5

ESTIMATES OF DIRECT NET (ECONOMIC)
REVENUES TO THE PROVINCIAL GOVERNMENT

(5% Discount Rate)

Time Period	Revenues Per Acre
1	-$130.56
10	-$174.32
20	-$126.34
50	-$215.46

As is noted in the body of this Report, the direct costs to the Provincial Government continue to increase due to the fact that once infrastructure is put in place and staff added to accomodate the potential increase in agricultural land expansion, the infrastructure must be maintained and the staff employed to manage the increases that have occurred. On the direct revenue side, the sale of public lands stops at year 20. The direct costs to the Provincial Government would continue to decrease as time progressed.

1.5.3 ESTIMATES OF NET (ECONOMIC) BENEFITS PER ACRE

A useful way to assess the extent of the costs and benefits is to calculate the net benefit per acre for each of the three components assessed. This figure indicates the absolute benefit (be it positive or negative) for the three components, which is 'hidden' in the benefit/cost ratio. These figures are presented on Tables 1.5.4 and 1.5.5 opposite.

As can be seen, the net benefit per acre to the farmer is negative in the first 10 years. When year 20 is reached the net benefit becomes modestly positive and increases significantly by year 50. This trend and associated figures mirrors the benefit/cost ratio presented earlier.

The net benefit per acre to the community generally increases over time. The largest increase comes between year 20 and 50 largely because some of the costs to the community stop at year 20.

The net direct revenue per acre to the Provincial Government is in a negative position for all time periods assessed. The negative net direct revenues per acre continually increase. Up to year 20, the increase is proportionate to the years. After year 20, the increase is dramatic because the direct revenues to the Provincial Government, in the form of land sales, stops at year 20. After this point in time there are only direct costs to the Government.

1.5.4 BENEFIT/COST ASSESSMENT: THE FOUR SECTORS

1.5.4.1 The Farmers

(a) The demand for agricultural land does not arise from a purely financial perspective. ("Can I make money?") Even considering potential capital gains, there are very obviously strong non-monetary motives related to homesteading and farm development. For example, in this age of large organizations (where virtually everyone is either an employee or unemployed), the opportunity to develop your own farm, your own livelihood, and your own life-style is unique. To be able to develop your own small business without considerable initial capital (in comparison to other agricultural regions and other independent small businesses) is particularly unique.

(b) Commercial farms and farmers in Northwestern Alberta are not unlike their counterparts in other regions of the province. It may be slightly riskier to farm in Northwestern Alberta (because of, primarily, climatic variability), but it has not been shown that it is any more or less economic to farm in this region than elsewhere in the province. (In a perfectly competitive market for agricultural land, the price of land would adjust to provide for similar rates of return to land between regions.)

(c) Commercial agriculture in Northwestern Alberta is, like elsewhere, relatively capital intensive with narrow margins. Thus, very good management is also required. Good management is region-specific. It takes years of training and adaptation to local conditions to be a successful farmer.

(d) What is different about agriculture in Northwestern Alberta is that it is physically expanding on a land base with generally lower soil capabilities than most other agricultural regions in Alberta. Thus, it is perceived by local residents and other Albertans as a growing industry in the region. At the present time, this is considered the "frontier". Thus, it is also a relatively young area with (naturally) more "growing pains" than other more mature agricultural regions. This is especially true regarding the more urgent need to develop equity - owned capital, both private and public. In a "new" region, the need to invest in additional human capital is also very important.

(e) The demand for agricultural land in the region, therefore, comes from numerous sources: previous farmers in the "south" who are "trading up"; the truck driver who is tired of "it all"; young individualists who still dream of a "place in the sun"; people who just want to "start over"; local farmers who are still trying to develop a (larger) viable farm unit; or local farmers' children who want to farm close to home. This demand, obviously, is largely located wherever land is available for settlement.

(f) Agriculturalists tend to focus almost exclusively on the need for viable commercial farm development. For these people, this is almost the sole purpose of developing more land for agriculture. Much of the present frustration in the agricultural community probably stems from the social-political need to look at land development in the Northwestern Alberta with numerous objectives in mind. In this context, some conflict between various interest groups is almost inevitable (and one might even argue, healthy).

(g) The complementary and conflicting development requirements of various economic sectors are abundantly clear. The actual and potential conflicts are equally obvious (e.g. agriculture displacing forestry).* Somewhat more obscure but no less important, however, are some very real complementarities. Aside from the (conventional) structural linkages between sectors, this is highlighted by looking at the off-farm employment requirements of farmers (and their family). Off-farm employment opportunities are very important to the further development of agriculture in the Northwestern Alberta. Farmers comprise a major component of the forestry labour force.

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* Note that forestry includes forestry management (e.g. for future cutting, for water management) as well as wood and fibre production.

(h) Future growth in the Northwestern Alberta should exploit these complementarities to effectively dilute any potential conflicts inherent in some resource management issues. Conversely, no growth or slow growth could exacerbate potential conflicts over future resource use (although the opposite could also be argued).

(i) The agricultural community in Northwestern Alberta is very much aware of the required role of government (especially the Provincial Government) in the ongoing development process, because public expenditures are ongoing (versus in an older community, where already sunk costs are largely ignored by both the government and local residents) and are all pervasive in community life. The required infrastructure (and associated institutions) is a recognized prerequisite to future agricultural expansion in the region (just as it is in any developing region). The central role of government is further highlighted because of the public's growing awareness of competing demands for land (e.g. agriculture and forestry), environmental concerns, and, last but not least, the distance from the economic, social, and political "centre". Further growth will facilitate shifting this centre further north, in terms of balance, whereas stagnation would tend to support the status quo.

1.5.4.2 The Communities

(a) The social and economic implications of opening new lands to the communities of Northwestern Alberta will be very significant. The economic benefit/cost ratios were estimated to be from 1.63 (year

50) to 4.47 (year 1), reflecting the likelihood of an overwhelmingly positive economic benefit to the communities. These ratios were calculated for all communities in general. The benefit would likely be much more positive if the land development is near one or two particular communities.

(b) As an example, if 250,000 acres were developed around a particular community over 10 years, the net benefit could be in the order of $40 million to the community; the bulk of this benefit being retail and service expenditures, as well as road construction and land clearing. Using the assumptions presented in the Report (see Section 4.3), this amount of land development could lead to an increase of approximately 1,000 people in the region and approximately 450 in the community over the 10 years.

Therefore, if the land development is spatially concentrated in certain areas, some communities will benefit tremendously. On the other hand, these same communities will incur some major costs in developing the community infrastructure and services necessary to accommodate a relatively large influx of new residents (e.g. water and sewage facilities, local roads, social services).

(c) In conclusion, from the reported costs and benefits and the quantitative assessment, it is our estimation that the anticipated benefits to the communities will far outweigh any costs that may occur.

To properly develop the new land of Northwestern Alberta, there will be a tremendous amount of human and capital resources needed. The communities of Northwestern Alberta already have the bulk of these resources (e.g. community services, contractors, business services) needed to accommodate the incremental development of new land. As the land is developed and the rural population expands, the communities will be the support base for these new residents.

Therefore, not only will the communities benefit during the development stage (e.g. road building, land clearing, machinery and material sales) but will continue to benefit as the farms expand, become fully developed and as the regional and community population grows to accommodate for the new found wealth of increased agricultural production.

(d) We have not taken into account potential social costs and other secondary impacts which should have a bearing on a final, balanced decision regarding new agricultural land development (or any major resource development). These costs might include the loss of some recreational opportunities, aesthetic deterioration of the landscape, land degradation, erosion impacts and other effects.

1.5.4.3 The Provincial Government

(a) Clearly, the expansion of agricultural land in the Study Area represents a significant direct cost to the Provincial Government over and above any direct revenue stream. This is as expected, since the majority of the benefits associated with the Provincial Government's expenditures are realized at the community and individual levels. Even if more extensive secondary and tertiary benefits (e.g. income tax, corporation tax, license fees and other revenues) were to be estimated and included in our assessment, it is likely that the Provincial Government costs would continue to exceed revenues over the period.

(b) Once committed to the agricultural expansion program, the majority of resultant costs to the Provincial Government last beyond the initial expansion period of 20 years. Therefore, the costs to the Provincial Government are long term.

(c) The primary costs of agricultural expansion will be placed on the Departments of Transportation and Environment (the latter for drainage improvements).

(d) The costs to the Provincial Government are in the areas of:

- capital improvements (roadways and drainage improvements)
- maintenance of the capital improvements
- improvement of the data base in the Study Area to better plan for and accomodate agricultural expansion
- staff (including overhead) primarily for enforcement, planning and extension services

(e) Given the amount of C.L.I. Class 4 and better land in the Yellow Area, the amount of land in the Green Area currently being utilized by the forest industry, and the amount of demand estimated in this Study, no direct significant economic impact is expected on the forest industry.

(f) The primary issues as reported to us are detailed in the body of the Report. They are too numerous to repeat here. However, a major theme that re-occured across most of our interviews was the need to plan any expansion of agricultural land so as to minimize disruptions and reduce costs (e.g. up-front planning has the potential of reducing drainage costs).

The second major theme was the need to critically assess the standard at which services are initially provided for agricultural expansion. The feeling was expressed that the existing standards for a number of services may be too high, in terms of initial provision. Reducing the level of services provided, during the early start-up years in land development, could reduce costs to the Provincial Government and perhaps speed up expansion. Services could be brought up to normally acceptable levels after the initial development period.

1.5.4.4 The Provincial Economy

(a) The potential growth in output (resulting from the increase in agricultural land and pension) from the agricultural base of Northwestern Alberta was translated into broad estimates of economic impacts on other provincial economic sectors and the overall provincial economy. General impact estimates were calculated using the Alberta Input-Output tables.

(b) Grain production is export oriented (80-90% exported). The impact of extensive additions to Northwestern Alberta's agricultural base does not therefore, have very substantial impacts throughout other sectors of the provincial economy. However, the expansion (a) leads to growth in a number of key sectors, (b) brings in export earnings to Alberta and Canada, and (c) raises the potential of further expansion in the manufacturing sector in Alberta (especially in food and farm machinery). For every $1 expansion in demand for the study area's grain output, there is a potential for a $1.136 expansion in output from the whole provincial economy.

(c) In contrast, the forestry products sector in Alberta has a significantly higher potential for income and employment spin-offs within the provincial economy. For every $1 expansion in demand for the study area's forestry products (using province-wide relationships), there is a potential expansion of $1.69 in all other economic sectors. This potential impact is 49% greater than that for the grains sector.

On a sector-by-sector basis, for comparison, the forestry products sector could have an impact on the manufacturing sector some 82% larger than the spin-off impacts of the grains sector. The multiplier effect on the wholesale and retail trade sector would be equally greater.

(d) The forestry products sector's impact on the transportation and storage sector could be over five times that of the grains sector's impacts.

(e) While long term development of the region might lead to more value added agricultural production and higher local employment and income impacts than those suggested by today's economic relationships, the same diversification of an already diversified regional forestry industry may also occur.

(f) In summary, the potential demand for new agricultural lands suggested by our surveys and research can be translated into a potential for a major expansion of the study area's agricultural economy. There could be as much as an additional $1.638 billion in expanded production (NVA). This could have various spin-offs throughout the Alberta economy, amounting to an additional $1.862 billion in new value added. However, the export orientation of the grains sector, the relatively small Alberta market and the institutional factors (e.g. the revisions to the Crow Rate) restraining further value added processing in this part of Canada, all militate against a larger beneficial multiplier impact within Alberta, in contrast to (for example) the forest products sector.

1.5.4.5 Benefit-Costs and the Development of New Agricultural Lands in Northwestern Alberta

(a) The decision to expand or restrain the development of new agricultural lands in Northwestern Alberta cannot be, and should not be made on purely economic grounds. Our analysis indicates the likely order of magnitude of costs and benefits, and equally important, the distribution of these. Resource development decisions will therefore have to be made on the basis of (a) social equity, (b) environmental management, (c) general regional development priorities, as well as (d) the economics of an adequate return to Provincial expenditures.

PART II

THE DEMAND FOR AGRICULTURAL LAND

Woods Gordon

SECTION 2.1

THE AMOUNT AND TIMING OF DEMAND

SECTION 2.1

THE AMOUNT AND TIMING OF DEMAND FOR NEW AGRICULTURAL LAND

INTRODUCTION

The purpose of this short section is to outline the land demand characteristics indicated from the survey and to give the assumptions and methodology used to calculate the amount of land.

2.1.1 THE SURVEY PROCESS

The initial survey designs for the farmer and other crown land applicant surveys were submitted with our Study Proposal (April 22, 1983). Using this design as a starting point we proceded to develop the farmer survey through several drafts, with the Steering Committee, before a finalized version was completed. Continuous revisions were necessary to incorporate all pertinent questions from the various concerned parties (e.g. forestry, fish and wildlife), avoid any potential biases, and most important, make the survey completely understandable and answerable. Our extensive pre-test which included 60 farmer surveys and 15 other crown land applicant surveys, ensured our final design was largely satisfactory.[1]

The surveys were sent out during a two day period (June 7 and 8, 1983) and three weeks were allowed to elapse before a follow-up letter was sent to the people that did not respond. While waiting for additional responses, all questionnaires were coded and the data entered into the computer. These tabulations were used for our Interim Report (July 29, 1983). As the additional questionnaires were received they were coded and entered. We extended our deadline to August 15 to accommodate as many responses as possible without jeopordizing our Study deadline. The results of this survey process were very satisfactory, as reflected in the survey response rates which are discussed next.

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[1] The finalized survey questionnaire is contained in Appendix A.2.4.

2.1.2 SURVEYS RESPONSE RATES

The response rates for both the farmer survey and the other crown land applicants were very good. Where a 20% response rate to a mailed questionnaire survey is considered adequate, the 39.3% response rate for the farmer survey and the 46.3% rate for the applicant survey we received has to be considered as very satisfactory. There are, of course, good reasons for these high rates. First, a well planned program involving a newsletter (see opposite) media releases (District Agriculturalists, newspapers, radio, T.V. stations) and a Woods Gordon "hotline" provided good exposure to the importance of the surveys. Second, because of the nature of the survey, the farmers probably perceived that it was in their best interest to answer it. Third, we used a cover letter signed by the Chairman of the Northern Alberta Development Council, Mr. Norm Weiss, MLA and followed up with a reminder note three weeks later.

On a zonal basis the response rates to the farmer survey were not significantly divergent to cause concern about a biased response. The zonal response rates were as follows:

Zone 1 - 38.4%
2 - 36.9%
3 - 42.2%
4 - 39.6%

In conclusion, the response rates were more than adequate and we are totally confident that the sample is very representative of our study universe.

2.1.3 THE DEMAND

For every type of land (i.e. crown land or patented), for every type of land use (i.e. grain, forage, improved grazing) and for every time period (i.e. 1983-86, 1986-91, 1991+) we calculated the average number of acres demanded in each category. Using these key figures as the primary

TABLE 2.1.1
LOCAL FARMER DEMAND - ACRES*

		1983-86	1986-91	1991+
Crown Land	- Grain	157,859	68,830	26,566
	- Forage	26,847	10,818	4,730
	- Improved Grazing	67,102	25,358	13,857
Patented	- Grain	101,232	58,606	30,657
	- Forage	26,098	16,327	19,200
	- Improved Grazing	9,907	9,811	9,917
TOTAL		389,045	189,750	104,987
ANNUAL DEMAND		129,681	37,951	10,498**

TABLE 2.1.2
OTHER APPLICANT DEMAND FOR CROWN LAND - ACRES**

		1983-86	1986-91	1991+
Crown Land	- Grain	39,390	26,117	13,517
	- Forage	8,522	6,753	5,236
	- Improved Grazing	11,162	12,233	5,994
Patented	- Grain	19,020	6,708	7,584
	- Forage	7,207	4,039	979
	- Improved Grazing	2,789	1,817	--
TOTAL		88,090	57,720	35,127
ANNUAL DEMAND		29,363	11,544	3,513**

TABLE 2.1.3
LOCAL FARMER'S FAMILY DEMAND - ACRES

	1983-86	1986-91	1991+
Family Member 1	236,302	104,528	43,431
Family Member 2	85,170	74,717	26,576
Family Member 3	35,145	28,891	22,581
Family Member 4	27,507	17,887	17,223
TOTAL	384,124	226,113	109,811
ANNUAL DEMAND	128,041	45,223	10,981***

*"Local Farmers" are the 1,600 residents in the five study area zones (1, 2, 3, 4 and 4A) who were engaged in some form of agriculture in 1982-83 and who were surveyed for this study.

**Applicants resident outside of the study area.

***Used ten year period to determine average.

SOURCE: Woods Gordon (1983)

input, we used the following simple formula to calculate the total demand in each category:

$$e = \left[\left(\frac{a}{b}\right) \times c \right] \times d$$

Where: a = number of respondents to question
b = number of respondents to survey
c = survey universe
d = average number of acres demanded
e = total demand

The result of these demand calculations is displayed in Tables 2.1.1, 2.1.2 and 2.1.3. If we add up the total figures for each type of demand (i.e. local Farmer, other Crown Land Applicant and Farmer's Family) we end up with the following totals:

1983-1986 period - 861,259 acres,
1986-1991 period - 473,583 acres,
1991-2001+period - 249,925 acres.

The total demand for the study period 1983-2001± is therefore, 1,584,767 acres, of which the majority is for crown land.

It is the actual demand for crown land that is most important to this study because it is reflective of the amount of new or raw land that is demanded. Patented land is of less importance to this study because it is held in private hands, is within the Yellow Area and is likely to be accessible by existing roads.

Using only crown land as the relevant measure of demand for new agricultural lands, we proceeded to calculate an estimate of the average annual total demand. There are two reasons for making this estimate. First, the benefit-cost assessments require such an estimate. Second, the demand questions were open-ended for the post-1991 period and we have to make a reasoned judgement as to when most of this demand is likely to

TABLE 2.1.4
AGRICULTURAL LAND IN NORTHWESTERN
ALBERTA: CALCULATION OF CROWN LAND DEMAND FROM THE STUDY AREA[1]

DEMAND INDICATED FROM SURVEY (Acres)

Year	Local Farmers' Demand	Farmers' Family	Other Crown Land Applicants	Total
1983	83,936[2]	102,433[3]	19,691[1]	206,063
84	83,936	102,433	19,691	206,063
85	83,936	102,433	19,691	206,063
86	21,001	36,178	9,021	66,200
87	21,001	36,178	9,021	66,200
88	21,001	36,178	9,021	66,200
89	21,001	36,178	9,021	66,200
90	21,001	36,178	9,021	66,200
91	4,515	8,785	2,475	15,775
92	4,515	8,785	2,475	15,775
93	4,515	8,785	2,475	15,775
94	4,515	8,785	2,475	15,775
95	4,515	8,785	2,475	15,775
96	4,515	8,785	2,475	15,775
97	4,515	8,785	2,475	15,775
98	4,515	8,785	2,475	15,775
99	4,515	8,785	2,475	15,775
2000	4,515	8,785	2,475	15,775
1983-2000	401,967	576,038	128,924	1,106,929

Fifty year demand (D): $\frac{1^{\circ} \text{ years}}{50} \times \frac{1,106,929}{D}$

$$D = \frac{55,346,450^{4}}{18}$$

D = 3,074,803 acres
or 61,496 per year for 50 years

1. Includes all land demand surveyed (i.e. grain, forage, improved grazing).
2. Includes crown land demand only.
3. Assume 80% of total demand to allow for a discount of patented land demand.
4. Eighteen years used for the calculation of the annual average demand for the 50 year period. This was in turn condensed into a 20 year demand period.

SOURCE: Woods Gordon (1983)

occur. We make two basic assumptions regarding the realization of demand. They are as follows:

1. The majority of the demand will be realized over a 20 year period. This assumption is supported by the farmers' response indicating a preference for new lands (not surprisingly) in the relatively immediate future (1983-86).
2. Eighty percent (80%) of the demand for new agricultural land from the farmer's family, will be for crown land, similar to that of the farmer himself.

Table 2.1.4 opposite outlines the methodology we used.

There are a number of important qualifications to attach to an estimate of the demand for new agricultural land. These are summarized below:

1. This estimate of demand is from those 1,600 farmers resident in the study area's four (4) zones, and a sample of other crown land applicants. The demand estimate relates only to the study area and these respondents; it cannot readily be extrapolated to represent the total demand for all of Northwestern Alberta.
2. This demand estimate is at a particular point in time, mid-1983. Farmers and other crown land applicants responded under prevailing economic conditions (e.g. current and expected market prices for grain, the relative costs of patented land versus crown land, cost of credit). Changes in the economic environment, especially in critical input costs and output prices, can lead to modifications in demand for land and types of land over time.
3. Our demand estimates are derived directly from the farmers' and other crown land applicants' responses. It is a "reported" demand and will only materialize into a revealed demand if (a) farmers have the requisite purchasing power at the appropriate time, and (b) the cost of new land is a reasonable economic proposition to the farmer at that time.

These qualifiers are important to the appropriate interpretation of the land demand estimates generated in this Report.

2.1.4 SUMMARY

We calculated our 50 year demand for crown land to be 3,074,803 acres. But for a realistic assessment of the timing and magnitude of impacts we assume that all the land development will in fact occur within the first 20 years of development because most farmers required land in the near term rather than the long term. Therefore, instead of having 61,496 acres developed per year for 50 years, we assume 153,740 acres will be developed on average, for 20 years.

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SECTION 2.2

LOCAL FARMER-BASED DEMAND: CHARACTERISTICS

NEWS RELEASE

THE DEVELOPMENT OF NEW AGRICULTURAL LAND IN NORTHWESTERN ALBERTA

The Northern Alberta Development Council (NADC), is undertaking a major study on the demand for agricultural lands. This study will also address the costs and benefits associated with opening up new lands and other resource development issues in Northwestern Alberta.

This is a very important study for the residents of this part of Alberta. It will contribute to the review of Provincial government programs and related policies in agricultural expansion. It will also provide valuable data, analysis and direction for all residents of the area, including farmers, forestry interests, municipal officials, recreation interests, and many others.

The study is being managed by a Steering Committee which includes a number of farmers from the region. The study commenced in March of this year and is expected to be completed in October. It is being undertaken by the Consultants Woods Gordon, in association with Marv Anderson and Associates Limited.

The study is divided into 5 phases as follows:

Phase 1 — Preparation of the detailed study programme (April/May)

Phase 2 — Preparation of questionnaires for a mail survey of up to 2,000 farmers, personal on-farm interviews of 150 farmers and 200 applicants for crown land. (May/June)

Phase 3 — Completion of the three large surveys, extensive interviews of municipal, school board, farm organization, Provincial department officials and other interest groups. Preparation of an **Interim Report** on the demand for agricultural land and other issues. (June/July)

Phase 4 — Completion of benefit-cost analyses relating to the development of new agricultural areas. Impact analyses will be undertaken for farmers, communities, the Provincial government and the Alberta economy. (July/September)

Phase 5 — Preparation of the **Final Report** and presentation to the NADC. (September/October).

You may be meeting or hearing from the Consultants over the next 3-4 weeks. You may receive a brief questionnaire in the mail. Please take this opportunity to participate fully in this important project!

If you wish to learn more about this study, please call:

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Woods Gordon

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TABLE 2.2.1

AGE OF FARMERS

(Percentage Distribution)

	Zones				
Age Groups	All	1	2	3	4(1)
< 20	.3%			1.9%	
21-30	14.0	15.5%	14.8%	15.4	13.0%
31-40	30.7	33.8	37.4	25.0	29.5
41-50	27.7	26.8	30.4	27.9	26.9
51-60	19.7	15.5	13.0	19.2	22.8
> 60	7.7	8.5	4.3	10.6	7.8
	100.0*	100.0*	100.0*	100.0*	100.0*

*May not add due to rounding

Source: Woods Gordon (1983)

(1) Zone 4 and Zone 4A are combined for the purpose of analysis in all tables.

SECTION 2.2

LOCAL FARMER-BASED DEMAND: CHARACTERISTICS

The purpose of this section is to give a basic description of the local farmer in the four study areas and the characteristics associated with his demand for new land. All the information for this section was obtained from the mail questionnaire to farmers. This section is broken down into four parts. They are:

1. The Farmer and the Farming Operation
2. Demand Characteristics
3. The Future Demand
4. Forestry, Fish and Wildlife and Other Regional Resources

It should be noted that the data and the inferences made in this section are specific to the four study zones and do not relate to all of Northwestern Alberta. To make inferences to Northwestern Alberta from this study alone would be incorrect.

2.2.1 THE FARMER AND THE FARMING OPERATION

2.2.1.1 Age of Farmers

Table 2.2.1 opposite outlines the age group distribution, by percent, of the farmers surveyed. The major points of this table are that (a) the farmers in Zones 1 and 2 are generally younger than the farmers in Zones 3 and 4, and (b) the age groups 31-40 and 41-50 represent the majority of the farmers.

2.2.1.2 Farming Experience

The average number of years of farming experience at their present location is 13.86 years for all farmers surveyed. On a zonal basis, the average years were: Zone 1 - 13.06; Zone 2 - 12.93; Zone 3 - 16.20; and Zone 4 - 13.63.

TABLE 2.2.2

FARM SIZE

(average acres)

Type of Land		Zones				
		All	1	2	3	4
Cultivated	- owned	487	592	438	627	438
	- leased	155	231	121	231	125
	- total	610	773	544	823	532
Unimproved	- owned	229	344	183	200	229
	- leased	177	341	96	112	190
	- total	344	525	226	280	366
Total	- owned	702	833	602	825	669
	- leased	316	497	195	439	274
	- total	950	1,218	768	1,137	896

Source: Woods Gordon (1983)

2.2.1.3 Farm Characteristics

The average size of their farming operation is outlined in Table 2.2.2 opposite. The zone with the highest amount of cultivated acres per farm is Zone 3, while Zone 1 has the highest number of unimproved acres per farm and also the largest farm units (i.e. 1,218 acres which is well above the 950 acre average for all zones). The average ownership rate (i.e. percentage of farm owned) for all zones is 73.9% while in Zone 1 it is 68.4%, in Zone 2 it is 78.4%, in Zone 3 it is 72.6%, and in Zone 4 it is 74.7%.

Approximately 37.5% (356 acres) of the present farm, for all farms surveyed, has been cleared since the farmer started farming it. On a zonal basis, Zone 2 leads the way with 48.1% (369 acres) cleared, followed by Zone 1 with 44.3% (540 acres) cleared, then Zone 4 with 35.3% (316 acres), and finally Zone 3 with only 30.3% (344 acres) cleared since they started farming it.

With respect to additional land that could be cleared, the average number of acres per farm for all zones is 175 (18.4% of total farm size). On a zonal basis, the distribution is: Zone 1 - 201 acres (16.5%), Zone 2 - 141 acres (18.4%), Zone 3 - 172 acres (15.1%) and, Zone 4 - 182 acres (20.3%). This clearly illustrates that there is still an opportunity, in all zones, for significant amounts of land clearing on the present farms.

2.2.1.4 Income Characteristics

Table 2.2.3 outlines the percentage breakdown of family income from farming. There are several significant zonal differences. In Zone 4 only 35.4% of farmers surveyed received over 60% of their family income from farming. This compares with 53.4% in Zone 1, 51.9% in Zone 2, 47.6% in Zone 3. Also, Zone 2 is the least dependent on other sources of income. A mere 26.4% of farmers in this zone received less than 40% of

TABLE 2.2.3

PERCENTAGE OF FAMILY INCOME FROM FARMING

% Income Group	Zones				
	All	1	2	3	4
0	7.2*	9.9	3.4	7.9	7.8
1-20	16.9	10.3	8.5	16.9	21.0
21-40	16.1	11.2	14.5	13.0	18.5
41-60	17.3	15.6	21.4	14.8	17.1
61-80	16.2	18.2	24.5	11.9	14.1
81-100	26.3	35.2	27.4	35.7	21.3
	100.0**	100.0**	100.0**	100.0**	100.0**

*Read as: 7.2% of farmers responding to this question received no (0%) income from farming

**May not add due to rounding

Source: Woods Gordon (1983)

their income from farming. This compares with 31.4% in Zone 1, 37.8% in Zone 3 and 47.3% in Zone 4.

With respect to the other sources of family income, the services industry provided the farmers with the best opportunity for income with 31.9% of all farmers surveyed deriving some income from the services industry. The next most popular source of income was from self-employment other than farming (e.g. trucking, construction) which provided 25.1% of farmers with an income source. The oil and gas industry provided 18.1% of all farmers with an income source while the construction and manufacturing industry provides 14.7% of farmers with some income. The forestry industry also provided 8.5% of farmers with some income, trapping 4.7% and guiding a mere 0.8%. Complete outlines for each income source by zones is contained in Appendix A.2.2.[1]

With respect to farm income, 84.8% of farmers received some income from grain production (see Table 2.2.4). The next important source of farm income was from livestock production with approximately 40% of all farms deriving at least some income from it (see Table 2.2.5). On a zonal basis, Zone 4 diverged from the rest of the zones. Farmers in Zone 4 have much less dependency on grain and a correspondingly higher percentage of farm income from livestock production. It should be noted that specialty crops and other types of farming did not significantly contribute to farm income (i.e. 95.6% of all farms had less than 20% of farm income from specialty crops, while for other crops the figure was 92.3%).

2.2.1.5 Delivery Points

The average one way distance to a grain elevator delivery point was 68 km. (42 miles). On a zonal basis though there was significant differences. Zone 2 farmers had to travel the farthest (107 km.) followed by

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1. See other sections of this Report for information related to farmer-employment in forestry. Also, it should be noted that the category 'trucking' likely includes trucking for the forest industry.

TABLE 2.2.4

PERCENTAGE OF FARM INCOME FROM GRAIN

	Zones				
% Income Group	All	1	2	3	4
0	15.2%*	7.1%	7.7%	9.8%	21.0%
1-20	4.9	1.4	1.7	2.0	7.5
21-40	6.7	4.3	5.2	3.0	8.8
41-60	10.9	--	9.4	6.9	14.9
61-80	13.8	10.1	18.9	15.8	12.2
81-100	48.6	77.1	57.2	62.8	35.6
	100.0**	100.0**	100.0**	100.0**	100.0**

*Read as: 15.2% of all farmers surveyed received no (0%) farm income from grain production

**May not add due to rounding

TABLE 2.2.5

PERCENTAGE OF FARM INCOME FROM LIVESTOCK

	Zones				
% Income Group	All	1	2	3	4
0	60.8%*	82.9%	61.2%	76.0%	51.5%
1-20	11.2	6.2	19.9	9.7	9.6
21-40	7.4	4.2	10.4	6.8	7.0
41-60	9.4	--	4.3	6.7	13.7
61-80	4.8	1.4	2.7	--	7.5
81-100	6.7	4.3	1.7	1.0	10.5
	100.0**	100.0**	100.0**	100.0**	100.0**

*Read as: 60.8% of farmers surveyed received no (0%) farm income from livestock production

**May not add due to rounding

Source: Woods Gordon (1983)

Zone 4 (76 km.) then Zone 1 (43 km.) and finally Zone 3, whose farmers have to travel an average of only 18 km.

The most popular delivery points in the study area are High Level, High Prairie, Grande Prairie and Manning. For Zone 1, High Level is the most popular. For Zone 2 it is also High Level. For Zone 3 it is Manning and for Zone 4 it is Grande Prairie and High Prairie (see Table 2.2.6 - overleaf).

2.2.2 DEMAND CHARACTERISTICS

2.2.2.1 Crown Land Demand

Of all the farmers surveyed, 80.3% have applied for crown land and of those who applied, 76.1% have purchased crown land. This roughly translates to 61% of all farmers surveyed having purchased crown land. There are major zonal differences for these figures as the following table illustrates.

	Percentage Applied	Percentage Applied & Purchased	Percentage Actually Purchasing
Zone 1	83.1%	85.0%	70.6%
Zone 2	93.0	74.5	69.0
Zone 3	66.7	77.6	51.8
Zone 4	79.5	74.5	59.2

2.2.2.2 Factors in Developing Crown Land

Of the farmers with experience in purchasing and developing crown land, the factors that have caused the highest degree of difficulty are (a) the high cost of credit, (b) the high cost of clearing and breaking land, and (c) the long distance (and cost) to the elevators (see Table 2.2.7 - next page). There was some major zonal differences, especially in Zone 3 where the cost of clearing and breaking land was given a very high order of difficulty (i.e. 82.1% vs. 66.3% for all zones) and the lack of roads was also given a relatively high order of difficulty (i.e. 43.4% vs.

TABLE 2.2.6

PERCENTAGE OF FARMERS USING EACH DELIVERY POINT

Delivery Point	Zones				
	All	1	2	3	4
High Level	28.5*	97.2	82.5		2.0
Grande Prairie	17.2				33.2
High Prairie	15.5		.9		29.6
Manning	9.6		.9	51.0	1.3
Falher	7.6				14.7
Keg River	6.9		14.9	21.6	.7
Donnelly	6.4		.9		12.1
Hawk Hills	4.7			25.5	.7
All Others	3.3	2.8	___	2.0	5.5
	100.0**	100.0**	100.0**	100.0**	100.0**

*Read as: 28.5% of all farmers surveyed use High Level as a delivery point

**May not add due to rounding

Source: Woods Gordon (1983)

29.3% for all zones). Zone 2 farmers gave the long distance to elevators as a major problem (i.e. 61.7% vs. 42.5% for all zones).

2.2.2.3 Factors in Acquiring Crown Land

In reference to the factors associated with acquiring crown land, the lowest level of satisfaction was given for the 'cost of purchasing land' followed by the 'process'. The highest level of satisfaction in the procedure of acquiring crown land was for 'location' followed by the 'factors for approval of the applications' (see Table 2.2.8). In other words, the farmers were relatively satisfied with the location of the parcels and the criteria used for approving the application.

When asked why they were interested in acquiring crown land, almost 77% of the farmers indicated that the high cost of acquiring developed land was very important in their decision. The other factors - lack of available developed agricultural land, and lack of undeveloped agricultural land were indicated to be highly important to about 40% of the farmers (see Table 2.2.9). There are no major zonal differences.

2.2.3 THE FUTURE DEMAND

2.2.3.1 Future Farm Production

To secure an understanding of the role crown land acquisition played in the farmer's overall plans for development, farmers were asked to indicate their plans (if any) to increase general farm production. When asked if they plan to increase their farm production, 79.3% of all farmers indicated they would. On a zonal basis, the percentages are as follows: Zone 1 - 84.3%; Zone 2 - 81.0%; Zone 3 - 75.7% and; Zone 4 - 78.8%.

To increase their farm production, the following ways and means were ranked as noted below:

TABLE 2.2.7

FACTORS ASSOCIATED WITH DEVELOPING CROWN LAND - THEIR DEGREE OF DIFFICULTY (Percentage Distribution)

	Zones				
Order of Difficulty	All	1	2	3	4
High Cost of Clearing and Breaking Land					
High	66.3%*	60.0%	54.8%	82.1%	68.2%
Medium	22.9	24.0	34.5	8.9	21.8
Low	5.9	8.0	7.1	3.6	5.5
No Difficulty	4.9	8.0	3.6	5.4	4.5
Lack of Roads					
High	29.3	18.2	28.8	43.4	28.3
Medium	21.5	27.3	16.3	20.8	22.5
Low	21.7	22.7	30.0	11.3	20.9
No Difficulty	27.4	31.8	25.0	24.5	28.3
Long Distance To Elevators					
High	42.5	20.9	61.7	18.0	45.6
Medium	20.2	14.0	25.9	4.0	23.3
Low	18.3	32.6	7.4	30.0	16.6
No Difficulty	19.1	32.6	4.9	48.0	14.5
Lack of Available Schools, Health Services					
High	8.7	4.8	9.9	24.0	4.9
Medium	13.4	9.5	16.0	16.0	12.5
Low	27.5	42.9	33.3	16.0	24.5
No Difficulty	50.4	42.9	40.7	44.0	58.2
Lack of Available Credit					
High	27.3	22.2	11.1	37.7	32.5
Medium	19.3	24.4	18.5	26.4	16.5
Low	22.0	20.0	25.9	18.9	21.6
No Difficulty	31.4	33.3	44.4	17.0	29.4
High Cost of Credit					
High	68.6	60.0	72.4	59.6	71.6
Medium	16.2	18.0	10.5	25.0	15.7
Low	7.6	12.0	15.8	7.7	3.4
No Difficulty	7.6	10.0	1.3	7.7	9.3

*Read as: 66.3% of farmers responding to this question, expressed a high degree of difficulty regarding the high cost of clearing and breaking land

Source: Woods Gordon (1983)

TABLE 2.2.8

FACTORS ASSOCIATED WITH ACQUIRING CROWN LAND

Factor and Level of Satisfaction	Zones				
Process	All	1	2	3	4
High	18.9*	14.6	9.6	19.9	23.4
Medium	45.8	41.7	49.4	49.0	44.5
Low	35.3	43.8	41.0	31.4	32.1
Factors for Approval					
High	34.5	31.9	23.6	27.1	41.1
Medium	39.6	36.2	51.4	60.4	30.7
Low	25.9	31.9	25.0	12.5	28.1
Cost of Land					
High	28.9	19.6	27.2	27.1	32.2
Medium	29.4	28.3	28.4	20.8	32.2
Low	41.6	52.2	44.4	52.1	35.6
Amount of Land					
High	28.3	25.0	20.0	32.6	31.4
Medium	39.7	43.8	44.0	45.7	35.7
Low	32.0	31.8	36.0	21.7	33.0
Location					
High	38.6	23.8	34.2	29.5	46.1
Medium	45.0	57.1	47.4	50.0	40.0
Low	16.4	19.0	18.4	20.5	13.9

Note: The columns for each factor for each zone add up to approximately 100%.

*Read as: 18.9% of farmers responding to this question had a high level of satisfaction with the process

Source: Woods Gordon (1983)

TABLE 2.2.9

WHY FARMERS ARE INTERESTED IN ACQUIRING CROWN LAND?

Importance of - High Cost of Developed Land	Zones				
	All	1	2	3	4
High	76.6*	71.1	81.5	78.4	75.5
Medium	13.4	11.1	14.8	3.9	15.6
Low	5.7	4.4	2.5	15.7	4.7
No Difficulty	4.4	13.3	1.2	2.0	4.2
Importance of - Lack of Available Developed Agricultural Land					
High	39.1	35.6	46.8	44.9	35.4
Medium	20.5	20.0	26.6	14.3	19.7
Low	25.6	26.7	19.0	24.5	28.3
No Difficulty	14.8	17.8	7.6	16.3	16.7
Importance of - Lack of Undeveloped Agricultural Land					
High	41.5	31.8	50.0	44.9	39.3
Medium	19.6	13.6	21.1	20.4	20.2
Low	24.7	31.8	25.0	26.5	22.4
No Difficulty	14.2	22.7	3.9	8.2	18.0

Note: The columns for each factor for each zone add up to approximately 100%.

*Read as: 76.6% of farmers responding to this question indicated that the high cost of developed land was a high importance in their decision to apply for crown land

Source: Woods Gordon (1983)

	ZONES				
	All	1	2	3	4
Expanded cultivated area of present farm	1	1	1	1	1
Purchased undeveloped crown land	2	2	2	5	3
Increase fertilizer use, more drainage, etc.	3	3	3	2	4
Additional livestock	4	6	4	4	2
Purchase more developed land	5	4	5	3	5
Additional specialty crops (forage, seed, etc.)	6	5	6	6	6
Lease already developed land	7	7	7	7	7

From the table above, we can see that the expansion of the cultivated area of their present farm was the unanimous first choice for all zones. The purchase of undeveloped crown land was the most popular second choice except for Zone 3, in which it was ranked fifth. This was expected because Zone 3 is a more mature area. Another divergence is the selection of additional livestock as second choice in Zone 4. Detailed rankings with the percentage distributions are contained in Appendix A.2.1 - Table 1.

2.2.3.2 Land Requirements

Only 23.8% of the farmers surveyed indicated that they did not require more land. Of the 76.2% who did indicate they wanted more land, 87.1% said they wanted to expand their present farm versus only 3.0% who wanted to relocate to a new farm. There is no major zonal differences with respect to the percentage of farmers who require more land and the reasons they want more land (see Table 2.2.10).

There are, however, major differences in the actual amount of land demanded. For both crown land and patented land the greatest demand came from Zone 4 (Valleyview area) which accounted for approximately 60% of all demand. On an individual farm basis, the farmers from Zone 4 also required the highest number of acres. Refer to Appendix A.2.1 - Table 2 for the complete zonal comparison.

TABLE 2.2.10

WHY MORE LAND?

	Zones				
	All	1	2	3	4
% of farmers wanting more land	76.2%	75.7%	78.1%	71.3%	77.2%
Reasons					
Want to expand my present farm	87.1	85.7	87.1	90.7	86.3
Want to relocate to a new farm	3.0	4.8	4.3	3.7	2.0
Other	7.7	4.8	7.1	1.9	10.2
Expand/relocate	2.2	4.8	1.4	3.7	1.5
	100.0	100.0	100.0	100.0	100.0

Source: Woods Gordon (1983)

The farmers who wanted to expand their present farm indicated that they are willing to travel an average of 16 km. (10 miles) from their present operation. This figure was the same for all zones. But with respect to the farmers who wanted to relocate, the average distance for all farmers was 160 km. (100 miles). There were major zonal differences however, with Zone 3 farmers willing to travel an average of 536 km. (335 miles) followed by Zone 1 farmers with 262 km. (164 miles), then Zone 4 at 93 km. (58 miles). Zone 2 farmers indicated that they would travel only an average of 32 km. (20 miles) to relocate.

The annual demand for each type of crown land for three time periods is outlined on Table 2.2.11. The demand is concentrated in the 1983-86 period with annual demand at a rate of four times the 1986-91 period (i.e. 84,000 acres vs. 21,000 acres). The majority of the overall demand is for grain land accounting for approximately 63% of the total demand in the 1983-86 period. This percentage is maintained for the rest of the study period. But on a zonal basis this percentage is much higher for all but one zone. Using the 1983-86 period as an example, the percentage of demand for grain land was: Zone 1 - 85.9%; Zone 2 - 86.3, and Zone 3 - 89%. Only Zone 4, which has a very heavy demand for improved grazing land (i.e. 90% of all the improved grazing land demanded for all zones), has a relatively equal distribution of demand (i.e. grain - 46.3%, improved grazing - 39.8% and forage - 13.9%).

The annual demand for each type of patented land for three time periods is outlined on Table 2.2.12. The major difference with the demand for crown land is that the demand for patented land is far more consistent across all three time periods. While the bulk of the demand is still during the 1983-86 period the decline to the next period is far less steep (i.e. 75% decline for crown land vs. 63% for patented land). As with crown land the majority of the demand is for grain land. But, unlike the high demand for improved grazing crown land in Zone 4, the demand for improved grazing patented land is relatively low. In fact,

TABLE 2.2.11

ANNUAL DEMAND FOR CROWN LAND (Acres)

	Zones				
	All*	1	2	3	4
1983-86 Period					
Grain	52,620	12,260	13,450	5,346	22,560
Forage	8,949	1,900	285	464	6,793
Improved Grazing	22,367	110	1,843	198	19,388
Total	83,936	14,270	15,578	6,008	48,741
1986-91 Period					
Grain	13,766	2,650	2,265	2,728	6,196
Forage	2,164	110	212	--	1,783
Improved Grazing	5,072	--	973	238	3,761
Total	21,002	2,760	3,450	2,966	11,740
1991+ Period					
Grain	2,657	725	531	560	896
Forage	473	--	111	--	354
Improved Grazing	1,386	--	335	--	1,032
Total	4,516	725	977	560	2,282

* The figures for the "all zones" calculation will not add exactly to the total for the four zones due to rounding during calculation.

Source: Woods Gordon (1983)

TABLE 2.2.12

ANNUAL DEMAND FOR PATENTED LAND (Acres)

	Zones				
1983-86 Period	All*	1	2	3	4
Grain	33,744	4,285	5,577	6,516	17,256
Forage	8,699	732	1,087	888	5,837
Improved Grazing	3,302	110	516	109	2,485
Total	45,745	5,127	7,080	7,513	25,578
1986-91 Period					
Grain	11,721	1,790	972	2,282	6,541
Forage	3,265	--	--	445	2,677
Improved Grazing	1,962	--	--	79	1,792
Total	16,948	1,790	972	2,806	11,010
1991+ Period					
Grain	3,066	1,032	--	541	1,495
Forage	1,920	--	--	149	1,692
Improved Grazing	992	--	--	40	906
Total	5,978	1,032	--	730	4,093

* The figures for the "all zones" calculation will not add exactly to the total for the four zones due to rounding during calculation.

Source: Woods Gordon (1983)

TABLE 2.2.13

LOCAL FARMER'S FAMILY DEMAND (Acres)

	1983-86	1986-91	1991+
Family Member 1	236,302*	104,528	43,431
Family Member 2	85,170	74,717	26,576
Family Member 3	35,145	28,891	22,581
Family Member 4	27,507	17,887	17,223
TOTAL	384,124	226,113	109,811
ANNUAL DEMAND	128,041	45,223	10,981**

* Calculated from survey using the following methodology:

$$e = \left[\left(\frac{a}{b}\right) \times c \right] \times d$$

Where a = number of respondents to question
b = number of respondents to survey
c = survey universe
d = average number of acres demanded
e = total demand

Example: $\left[\left(\frac{155}{636}\right) \times 1600 \right] \times 606 = 236{,}302$

**Used ten year period to determine average

Source: Woods Gordon (1983)

the demand for forage land is far greater than for improved grazing. This is in exact contrast to the demand for crown land for Zone 4.

The size of the average parcel demanded for both crown land and patented land for the three time periods is contained in Appendix A.2.1 -Table 2. This useful table gives all the figures necessary to calculate the annual demand calculations.

When asked if any members of their family who do not own their own farm want land for farming, 33.8% of all farmers indicated yes. On a zonal basis, Zone 1 (39.1%) and Zone 2 (44.2%) were significantly higher than Zone 3 (29.4%) and Zone 4 (30.4%).

Table 2.2.13 outlines the farmer's family demand for all types of land. As with the farmer demand, the majority of the demand is during the 1983-86 period. This may indicate that many of the family members are old enough already to start farming, therefore making the demand more immediate. The data used to calculate Table 2.2.13 is contained in Appendix A.2.2 - Table 3.

Finally, with regards to the development of crown land, 81.2% of farmers surveyed indicated that the development of crown land would be desirable. Both Zone 1 farmers (85.9%) and Zone 2 farmers (89.5%) were appreciably higher than Zone 3 (74.0%) and Zone 4 (79.7%), indicating the crown land development is slightly more desirable in the north part of Northwestern Alberta.

2.2.4 FORESTRY, FISH AND WILDLIFE AND OTHER REGIONAL RESOURCES

2.2.4.1 Forestry Resources

When asked to give their views on the importance of forestry to their local community economy, 76.7% of all farmers indicated it was either very important or important. For Zone 1, 94.4% of the farmers indicated

TABLE 2.2.14
IS THERE ENOUGH TIMBER DEVOTED TO FARMER USE?

		ZONES			
RESPONSE	ALL	1	2	3	4
More Than Enough	4.9	8.5	2.6	6.9	4.4
Enough	46.0	38.0	58.3	56.9	40.2
Not Enough	30.1	38.0	24.3	20.6	33.2
Don't Know	19.0	15.5	14.8	15.7	22.2
	100.0*	100.0*	100.0*	100.0*	100.0*

*May not add due to rounding.

Source: Woods Gordon (1983)

forestry to be important. With Zone 2, the number of farmers indicating that forestry was important was also very high (i.e. 88.8%). For Zone 3 (67.4%) and Zone 4 (71.6%) there was less emphasis on the importance of forestry although it was still fairly high.

On the question of whether enough timber is devoted to farmer use, only 4.9% of all farmers said there was more than enough, while 30.1% said there was not enough. Table 2.2.14 outlines the complete response for all zones.

When asked to rank the benefits of the forestry resource, the farmers responded as follows:

	ZONES				
	ALL	1	2	3	4
Off-Farm Employment	1	1	1	1	1
Farmer Wood Supply	2	2	2	2	2
Recreation	3	3	3	3	3
Grazing Leases	4	4	4	4	4

For every zone the benefit of off-farm employment was ranked first by a wide margin. Refer to Appendix A.2.3 - Table 1 for the complete tabulations of the rankings.

Only 14.1% of the farmers surveyed indicated that they received no benefits from the forestry resource. On a zonal basis there were significant differences to this question. For Zone 1 the percentage of farmers indicating no benefit was 24.3%, Zone 2 - 4.3%, Zone 3 - 13.6% and Zone 4 - 15.4%.

When asked how far they are willing to travel to harvest their own farmer lumber supply, the average was 37 km (23 miles). On a zonal basis there

TABLE 2.2.15

THE IMPORTANCE OF FISH AND WILDLIFE RESOURCES TO THE LOCAL ECONOMY

	ZONES				
IMPORTANCE	ALL	1	2	3	4
Very Important	24.7	31.0	14.8	33.3	24.2
Important	44.8	47.9	45.2	45.1	44.0
Not Important	22.0	14.1	32.2	14.7	22.4
Don't Know	8.5	7.0	7.8	6.9	9.4
	100.0*	100.0*	100.0*	100.0*	100.0*

*May not add due to rounding.

Source: Woods Gordon (1983)

were no significant differences, with the range being from 34 km to 45 km (21 to 28 miles).

2.2.4.2 Fish and Wildlife Resources

When asked to give their views on the importance of fish and wildlife resources to their local economy, approximately two-thirds of the farmers indicated it to be either very important or important. Zones 1 and 3 placed more importance on fish and wildlife than Zones 2 and 4. See Table 2.2.15 for the complete outline of the zonal responses. The number of farmers not having an answer (i.e. Don't Know) was significantly less than those for the benefit of the forestry resource.

When asked to rank the benefits of the forestry resource, the top two rankings were given to recreation and food supply.

The actual rankings for each zone is as follows:

	ZONES				
	ALL	1	2	3	4
Recreation	1	1	2	2	1
Food Supply	2	2	1	1	2
Trapping Income	3	3	3	3	3
Guiding	4	4	4	4	4

On a zonal basis, Zones 2 and 3 ranked food supply ahead of recreation, while the rest of the zones were consistent with the rankings for all zones. Refer to Appendix A.2.3 - Table 2 for the complete tabulations of the rankings. There were major zonal differences in the number of farmers who indicated that fish and wildlife resources provided no benefits (i.e. All - 18.7%, 1 - 16.9%, 2 - 29.8%, 3 - 17.3%, and 4 - 15.8%).

2.2.4.3 Other Regional Resources

Regarding the question of whether game ranching on patented land could be commercially viable in Northern Alberta, 36.8% of farmers responding indicated it could, while 41.9% didn't know. Only in Zone 2 did more farmers indicate that they thought game ranching would not be viable than thought would be viable. The actual responses are as follows:

	ZONES				
	ALL	1	2	3	4
Yes	36.8	44.9	15.7	39.4	41.6
No	21.2	14.5	26.1	22.1	20.6
Don't Know	41.9	40.6	58.3	38.5	37.8

When asked which activities would have the greatest chance of being commercially successful the rankings were as follows:

	ZONES				
	ALL	1	2	3	4
Big Game Ranching	1	1	1	1	1
Fur Farming	2	2	3	2	3
Fish Farming	3	3	2	3	2
Game Bird Ranching	4	4	4	3*	4

* Tie for third.

This table clearly indicates that the farmers of Northwestern Alberta believe big game ranching and fur farming to be the activities standing the best chance of commercial survival. Refer to Appendix A.2.3 - Table 3 for the complete tabulations of the rankings.

On the issue of expanding outdoor recreation opportunities for public use, 53.9% of farmers indicated there was a need. Zonally, there was an especially strong endorsement for the expansion of recreation opportunities in Zone 1 (85.9%). The other zones expressed far less need with 45.4% in Zone 2, 57.3% in Zone 3 and 47.7% in Zone 4 indicating a need for expanded outdoor activities.

When asked to indicate the most important types of recreation opportunities which they would like to see developed, there was an equally strong endorsement for both day-use activities (e.g. picnics, swimming) and water access for fishing (e.g. boat launches). The actual rankings for each zone is as follows:

	ZONES				
	ALL	1	2	3	4
Day Use	1	2	1	2	2
Water Access for Fishing	2	1	2	1	4
Overnight Camping	3	3	3	3	3
Fish Stocking	4	4	4	5	1
Hunting	5	5	5	4	5

Zone 4 farmers were the only ones to significantly diverge from the other zones by ranking fish stocking first. Refer to Appendix A.2.3 - Table 4 for the detailed tabulations of the rankings.

2.2.5 SUMMARY

From this section the main summary points and conclusions are:

Farmer Characteristics

- age of the farmer is normally distributed but with younger farmers in the north (i.e. Zone 1 and 2)
- the average farming experience is 13.86 years with the zonal breakdown as 1 - 13.06; 2 - 12.93; 3 - 16.20 and 4 - 13.63
- the average farm size is approximately 1 1/2 sections with approximately 75% owned and 25% leased; there are major zonal differences in the average farm size but ownership rates are relatively stable

- o on the average farm, which is approximately 950 acres, 610 acres are cultivated and 340 acres are unimproved
- o approximately one-third of the respondents' present farm size has been cleared since they started farming it, but for Zone 1 and 2, this figure is significantly higher (i.e. 45-50%)
- o approximately 18.4% of the respondents' present farm is available for further clearing; on a zonal basis, the percentages are 1 - 16.5%; 2 - 18.4%; 3 - 15.1% and 4 - 20.3%
- o very few farmers are completely dependent on farm income for their livelihood but rely on a variety of income sources for their livelihood (e.g. forestry, service industry, oil and gas)
- o farming contributes 81-100% of family income for only about one quarter of young farmers (i.e. less than 5 years in farming in the area), whereas it accounts for about 40% of family income for older farmers (i.e. those with over 16 years farming experience in the area). Off-farm income is critical to all farmers, especially the beginner farmer
- o the larger the farm unit the greater the dependency on agriculture as a source of family income
- o most farmers received most of their farm production from grain production, with livestock production providing a significant amount of farm income in certain areas (i.e. Zone 4)
- o the average distance to grain delivery points was 68 km. but this increased to an average of 107 km. in Zone 2 while farmers in Zone 4 had to travel only an average of 18 km.

The Demand for Land

- o approximately 80% of respondents have applied for crown land while 61% have purchased crown land; there are major zonal differences regarding crown land purchase (i.e. Zone 1 - 70.6%; 2 - 69.0%; 3 - 51.8% and 4 - 59.2%)
- o the larger the farm unit, the greater the probability of the farmer having applied for crown land
- o the factors that have caused the highest degree of difficulty in purchasing and developing crown land are the 'high cost of credit' and the 'high cost of clearing and breaking land'
- o the 'cost of purchasing land' and the 'process' were the two factors causing the most difficulty in acquiring crown land
- o the 'high cost of acquiring developed land' was the most important factor in their decision to apply for crown land

- the provision of roads and services is only a moderate concern with farmers who have purchased crown land

- distance to elevators is a moderate to high concern for two thirds of the farmers who have purchased crown land

- approximately 80% of respondents plan to increase production, with the expansion of the cultivated area on their present farm and the purchase of undeveloped crown land the primary ways of doing it

- the larger the farm unit, the greater the likelihood of increased farm production

- the longer farmers farm the area, the greater the likelihood that more crown land will be demanded. Only 58% of farmers with less than 5 years experience require additional crown land, whereas some 70-87% of those with over 11 years experience require crown land

- however, there is not a clear relationship between farm size and the acquisition of crown land as the principal means of expanding production

- about one quarter of the farmers who plan to increase production, will do so without the purchase of crown land

- for farmers that are very dependent on farming (81-100% of family income) there is less indication that they plan to increase production. This suggests that these farmers are more satisfied with their income situation than other farmers

- farmers with less than 20% of their income from farming also indicated less likelihood that they would increase production

- the beginner farmer (under 20 years of age) and the mature farmer (41-60 years old) are proportionally the strongest proponents of crown land development for increased farm production

- very few farmers (3.0%) want to relocate but would rather expand their present farm and are willing to travel an average of 16 km. to do so; the smaller the farming unit the greater the tendency to relocate

- the demand for land is concentrated in the 1983-86 period with the majority of demand for grain land (i.e. 85-89% of all demand) except in Zone 4 (i.e. 46.3%) where there is an extremely high demand (i.e. 39.8%) for improved grazing land

- there is a very significant portion of the present demand from the farmer's family with a majority of the demand in the near future, possibly indicating that the family members are now in the market for additional land

- there was a very strong endorsement from the respondents for the future development of crown land

Forestry and Other Resources

- most respondents (77%), across all age groups, feel forestry to be important to their local economy with the north part of the Peace Country (i.e. Zone 1 and 2) giving almost unanimous recognition of forestry's importance to their economies
- it is noteworthy that the vast majority (78%) of farmers who plan to increase production, ranked the importance of forestry in their local economy as "high"
- 30% of respondents indicated that not enough timber is being devoted to farmer use; on a zonal basis the percentages were: 1 - 38.0%; 2 - 24.3%; 3 - 20.6% and 4 - 33.2%
- the two major benefits of the forestry resource are off-farm employment and farmer wood supply (no zonal differences)
- only 14.1% of respondents indicated they received no benefits from the forestry resource but there were major zonal differences (i.e. Zone 1 - 24.3%; 2 - 4.3%; 3 - 13.6% and 4 - 15.4%)
- farmers were willing to travel an average of 37 km. to harvest their own timber supply
- approximately two-thirds of respondents felt fish and wildlife was important to their local economy with the major benefits being recreation and food supply
- there was a large amount of indecision on the question of whether game ranching could be commercially viable
- the activities that were thought to have the greatest chance of commercial success are big game ranching followed by fur farming; fish farming was given recognition in Zones 2 and 4
- the respondents were split on the question of whether outdoor recreation opportunities should be expanded, except in Zone 1 where it was given a very strong endorsement (86%)
- the two recreation activities that farmers would like to see developed are day use areas and water access for fishing except in Zone 4 where fish stocking was given top ranking

SECTION 2.3

OTHER CROWN LAND
APPLICANT DEMAND:
CHARACTERISTICS

TABLE 2.3.1

OTHER CROWN LAND DEMAND: AGE OF APPLICANTS

Age Group	% in Each Age Group
<20	5.0%
21-30	39.0
31-40	25.0
41-50	20.0
51-60	8.0
>60	3.0
	100.0

Source: Woods Gordon (1983)

SECTION 2.3
OTHER CROWN LAND APPLICANT DEMAND: CHARACTERISTICS

INTRODUCTION

This section of the Report presents the findings from the other crown land applicant survey. The section is divided into (a) description of the applicant, and (b) plans for the future.

The primary purpose of the survey research in this study was to assess local farmer demand for land. A secondary purpose was to survey individuals who may be interested in crown land, but who were not farmers within the study area. To achieve this a questionnaire survey of over 200 applicants who had applied for crown land within the study area, was undertaken. Response to this questionnaire was high. In total 46% of the respondents replied. The data presented in this section contain data from these questionnaires.[1]

It should be noted that these responses likely do not represent total demand from outside the region, but nonetheless provides a sample of information about levels of demand and crown land applicants.

2.3.1 THE APPLICANT

2.3.1.1 Age of Applicants

The table opposite outlines the age group distribution, by percentage, of the applicants surveyed. The majority of the applicants are relatively young, with the 21-30 age group the most frequently identified.

2.3.1.2 Other Characteristics

Approximately 56% of the applicants are currently farming. But, of the applicants that are not currently farming, 65.1% of them have had farming experience. This translates into a total of approximately 85% of the

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[1] A copy of the finalized questionnaire is included in Appendix A.2.5.

TABLE 2.3.2

NATURE OF FUTURE DEMAND FROM OTHER CROWN LAND APPLICANTS

	1983-86	1986-91	1991+
Crown Land			
Grain	39,390	26,117	13,517
Forage	8,522	6,753	5,236
Imp. Grazing	11,162	12,233	5,994
Sub-Total	59,074	45,103	24,747
Annual Demand	(19,691)	(9,021)	(2,475)*
Patented Land			
Grain	19,020	6,708	7,584
Forage	7,207	4,039	979
Imp. Grazing	2,789	1,817	-
Sub-Total	29,016	12,564	8,563
Annual Demand	(9,672)	(57,720)	(35,127)*
TOTAL	88,090	57,720	35,127
TOTAL ANNUAL DEMAND	(29,363)	(11,544)	(3,513)

*Used ten year time frame to calculate annual demand.

Source: Woods Gordon (1983)

people surveyed having farming experience or currently farming. In addition, almost everyone (95.0%) that responded still requires land in Northwestern Alberta.

2.3.2 APPLICANT'S PLANS

2.3.2.1 Demand Characteristics

When asked why they wanted land in Northwestern Alberta, the most popular reason selected was the need to expand their present farm unit. Entering farming for the first time and re-entering farming were also popular reasons for demanding land in Northwestern Alberta. The table below outlines how the applicants responded.

Reasons	% of Respondents Indicating Yes
Need to expand my present farm	49.5%
Want to enter farming (first time)	26.9
Want to re-enter farming	23.4
Want to suplement my other business and employment income	8.5
Want to relocate	6.4
Other	5.5

When asked about the amount, the type of land demanded, and when they would require it, the highest response was for crown land for grain production in the 1983-86 period. Table 2.3.2 outlines the complete nature of the land demand from crown land applicants. Some of the key points from this table are:

- approximately 60% of all land demand is for grain production
- approximately 70% of all land demand is for crown land
- most of the demand is in the 1983-86 period accounting for approximately 50% of total demand during study period (i.e. 1983-2001)
- respondents indicated a preference for crown land use for grazing in a relatively higher degree than for patented land

TABLE 2.3.3
FACTORS RELATED TO ACQUIRING AND DEVELOPING CROWN LAND - THEIR ORDER OF DIFFICULTY

FACTORS	ORDER OF DIFFICULTY			
	HIGH	MED.	LOW	NO DIFFICULTY
High cost of clearing and breaking land (50)*	48.0%	34.0%	10.0%	8.0
Lack of roads (47)	17.0	19.1	36.2	27.7
Long distance (and cost) to the elevators (48)	25.0	20.8	33.3	20.8
Lack of available schools, health services, etc. (44)	2.3	13.6	27.3	56.8
Lack of available credit (45)	33.3	17.8	26.7	22.2
High cost of credit (43)	67.4	18.6	9.3	4.7

()* Number of people answering questions.

** Read as - 48.0% of people responding to the question consider the high cost of clearing and breaking land to be a high degree of difficulty factor in their attempt to acquire and develop crown land.

Source: Woods Gordon (1983)

When asked where they wanted to farm, 28.8% said anywhere in Northwestern Alberta would suffice. With respect to specific locations, Valleyview was most often mentioned (16.3%) as the place they would like to farm, followed by La Crete (10%) and Ft. Vermilion (8.8%). Other places mentioned were Manning, Peace River, Little Smoky area, Hawk Hills, Keg River, British Columbia, Smoky River area and High Prairie.

2.3.2.2 Factors in Acquiring Crown Land

When asked to indicate the order of difficulty they have experienced regarding a number of factors related to acquiring and developing crown land, the highest degree of difficulty was encountered with the high cost of credit followed by the high cost of clearing and breaking land then lack of available credit. The factor that posed the least difficulty was the lack of available schools, health services, etc. Table 2.3.3 describes the order of difficulty for each factor in depth.

When asked why they were interested in acquiring crown land, the most important factor, by a wide margin, was the high cost of acquiring developed land (77.4% of respondents indicating a high degree of importance) followed by lack of available undeveloped agricultural land (47.3%) then the lack of available developed agricultural land (26.3%).

On the basis of their experience in applying for crown land, the lowest level of satisfaction reported related to the process (i.e. the way notice was given, the time taken, the appeal process, etc.) followed by the cost of purchasing land. Interestingly, the cost of purchasing land was also indicated as the factor with the highest level of satisfaction. Table 2.3.4 gives the complete response for each factor.

Finally, when asked how land should be provided, 87.9% of respondents indicated it should be made available by opening areas adjacent to present agricultural lands, while only 34.3% indicated it should be done by opening blocks of new land distant from existing agricultural land.

2.3.3 SUMMARY

The main points of this section describing crown land applicant demand characteristics are:

- most of the applicants are relatively young (i.e. 21-40 age group)
- 85% of applicants have farming experience or are currently farming
- the primary reason for applying for crown land was to expand their present farm unit
- most of the demand is for crown land for grain production in the 1983-86 period
- approximately 30% said anywhere in Northwestern Alberta would suffice as a place to farm but more importantly the other 70% were very specific about the location where they wanted land
- regarding the factors of development, the highest degree of difficulty was with the high cost of credit followed by the high cost of clearing and breaking land
- the high cost of acquiring developed land was the primary reason the respondents applied for crown land
- the process of application (i.e. the way notice was given, the time taken, the appeal process) caused the greatest problem for the applicants in applying for crown land
- most respondents indicated that land should be made available by opening areas adjacent to present agricultural lands.

APPENDIX A.2.1
FARMERS DEMAND FOR AGRICULTURAL LAND

TABLE (A.2.1)-1

RANKING OF WAYS AND MEANS SELECTED TO INCREASE PRODUCTION (PERCENT)

Expand Cultivated Area

Rank	Zones				
	All	1	2	3	4
1	65.3(369)*	70.7(41)	75.0(68)	63.2(57)	61.6(203)
2	20.9	12.2	13.2	19.3	25.6
3	6.0	2.4	2.9	7.0	7.4
4	7.9	14.6	8.8	10.5	5.4
	100.0%	100.0%	100.0%	100.0%	100.0%

Increase Fertilizer Use, Etc.

Rank	All	1	2	3	4
1	27.4(307)	33.3(30)	25.9(58)	32.7(49)	25.3(170)
2	27.7	16.7	24.1	24.5	31.8
3	22.8	20.0	27.6	24.5	21.2
4	22.1	30.0	22.4	18.4	21.8
	100.0%	100.0%	100.0%	100.0%	100.0%

Additional Livestock

Rank	All	1	2	3	4
1	26.8(276)	16.7(24)	16.7(48)	29.4(34)	30.6(170)
2	28.6	12.5	25.0	17.6	34.1
3	22.5	20.8	16.7	26.5	23.5
4	22.1	50.0	41.7	26.5	11.8
	100.0%	100.0%	100.0%	100.0%	100.0%

Add Specialty Crops

Rank	All	1	2	3	4
1	13.2(234)	16.1(31)	10.8(37)	15.0(40)	12.7(126)
2	23.5	35.5	29.7	17.5	20.6
3	37.2	41.9	32.4	45.0	34.9
4	26.1	6.5	27.0	22.5	31.7
	100.0%	100.0%	100.0%	100.0%	100.0%

(continued)

Purchase Developed Land

Rank	All	1	2	3	4
1	21.5(246)	21.2(33)	14.0(50)	40.0(40)	18.7(123)
2	26.8	42.4	30.0	20.0	23.6
3	22.0	12.1	28.0	15.0	24.4
4	29.7	24.2	28.0	25.0	33.3
	100.0%	100.0%	100.0%	100.0%	100.0%

Lease Developed Land

Rank	All	1	2	3	4
1	10.2(176)	7.4(27)	7.7(39)	15.6(32)	10.3(78)
2	19.9	18.5	30.8	28.1	11.5
3	30.7	29.6	28.2	25.0	34.6
4	39.2	44.4	33.3	31.3	43.6
	100.0%	100.0%	100.0%	100.0%	100.0%

Purchase Undeveloped Crown Land

Rank	All	1	2	3	4
1	34.5(296)	41.2(34)	37.1(70)	19.0(42)	36.0(150)
2	24.3	14.7	30.0	40.5	19.3
3	18.2	23.5	17.1	9.5	20.0
4	23.0	20.6	15.7	31.0	24.7
	100.0%	100.0%	100.0%	100.0%	100.0%

*( ) - Indicates number of respondents

Source: Woods Gordon (1983)

TABLE (A.2.1)-2

ACTUAL LAND DEMANDED BY TYPE OF LAND OWNERSHIP (ACRES)

		Zones				
Period	Land Type	All	1	2	3	4
1983-86	CL - Grain	479(131)*	744(18)	456(32)	431(15)	428(66)
	Forage	232 (46)	260 (5)	103 (3)	187 (3)	243(35)
	Imp. Grz.	523 (51)	60 (2)	400 (5)	120 (2)	578(42)
	PT - Grain	503 (80)	520 (9)	605(10)	394(20)	527(41)
	Forage	247 (42)	200 (4)	393 (3)	179 (6)	252(29)
	Imp. Grz.	179 (22)	120 (1)	280 (2)	66 (2)	183(17)
1986-91	CL - Grain	456 (60)	603 (8)	315(13)	611 (9)	431(30)
	Forage	172 (25)	100 (2)	128 (3)	--	186(20)
	Imp. Grz.	315 (32)	--	352 (5)	240 (2)	327(24)
	PT - Grain	448 (52)	543 (6)	293 (6)	460(10)	455(30)
	Forage	295 (22)	--	--	450 (2)	294(19)
	Imp. Grz.	300 (13)	--	--	160 (1)	340(11)
1991	CL - Grain	480 (22)	880 (3)	384 (5)	753 (3)	340(11)
	Forage	188 (10)	--	200 (2)	--	211 (7)
	Imp. Grz.	324 (17)	--	303 (4)	--	359(12)
	PT - Grain	677 (18)	1,253(3)	--	436 (5)	624(10)
	Forage	638 (12)	--	--	600 (1)	706(10)
	Imp. Grz.	438 (9)	--	--	160 (1)	630 (6)
RESPONDENTS:		636	71	115	104	346
UNIVERSE:		1,600	195	318	258	829
RESPONSE RATE:		39.8%	36.4%	36.2%	40.3%	41.7%

CL = Crown Land
PT = Patent Land

*Number of respondents

Source: Woods Gordon (1983)

TABLE (A.2.1)-3

FARMER'S FAMILY LAND DEMAND DATA (ACRES)

Family Member	Year	Zones				
		All	1	2	3	4
#1	1983	606(155)*	695(22)	534(38)	592(25)	622(70)
	1986	554 (75)	491 (7)	524(19)	595(10)	569(39)
	1991	664 (26)	360 (2)	422 (7)	600 (3)	842(14)
#2	1983	555 (61)	777 (7)	533(22)	650(12)	443(20)
	1986	660 (45)	520 (4)	415(11)	504 (5)	822(25)
	1991	556 (19)	--	544(10)	640 (1)	560 (8)
#3	1983	635 (22)	960 (2)	592(10)	744 (5)	484 (5)
	1986	522 (22)	640 (1)	442(11)	480 (2)	628 (8)
	1991	561 (16)	480 (2)	601 (8)	640 (1)	512 (5)
#4	1983	781 (14)	--	873 (9)	640 (1)	610 (4)
	1986	790 (9)	--	442 (5)	640 (1)	1,420 (3)
	1991	978 (7)	--	674 (6)	--	2,800 (1)

*Number of respondents

Source: Woods Gordon (1983)

APPENDIX A.2.2
SELECTED FARMER CHARACTERISTICS

TABLE (A.2.2)-1

PERCENTAGE OF FAMILY INCOME FROM SERVICES

% Income Group	Zones All	1	2	3	4
0	68.1%	71.8%	69.2%	71.6%	66.0%
1-20	9.8	11.2	9.5	7.9	10.1
21-40	7.5	5.6	6.9	6.9	8.4
41-60	6.5	2.8	8.6	2.0	6.1
61-80	3.8	1.4	4.4	6.0	3.5
81-100	5.4	7.0	1.8	5.8	6.2
	100.0	100.0	100.0	100.0	100.0

TABLE (A.2.2)-2

PERCENTAGE OF FAMILY INCOME FROM OIL AND GAS

% Income Group	Zones All	1	2	3	4
0	81.9%	77.5%	99.1%	81.4%	77.2%
1-20	6.4	8.4	.9	3.9	6.7
21-40	3.7	7.0	--	3.9	4.1
41-60	2.8	2.8	--	3.0	3.7
61-80	4.1	1.4	--	4.0	6.0
81-100	2.2	2.8	--	4.0	2.4
	100.0	100.0	100.0	100.0	100.0

Source: Woods Gordon (1983)

TABLE (A.2.2)-3

PERCENTAGE OF FARMERS' FAMILY INCOME FROM CONSTRUCTION AND MANUFACTURING

% Income Group	Zones All	1	2	3	4
0	85.3%	85.7%	85.3%	86.3%	85.0%
1-20	5.7	5.7	8.6	7.9	4.0
21-40	3.4	1.4	4.4	3.0	3.8
41-60	2.4	2.9	.9	--	3.5
61-80	1.2	--	.9	--	1.8
81-100	2.0	4.3	--	3.0	2.0
	100.0	100.0	100.0	100.0	100.0

TABLE (A.2.2)-4

PERCENTAGE OF FAMILY INCOME FROM FORESTRY

% Income Group	Zones All	1	2	3	4
0	91.5%	98.6%	78.6%	97.1%	92.8%
1-20	2.9	1.4	7.8	1.0	2.1
21-40	1.8	--	5.2	1.0	1.2
41-60	2.3	--	5.2	1.0	2.1
61-80	1.2	--	2.6	--	1.2
81-100	.7	--	.9	--	.9
	100.0	100.0	100.0	100.0	100.0

Source: Woods Gordon Survey (1983)

TABLE (A.2.2)-5

PERCENTAGE OF FAMILY INCOME FROM SELF EMPLOYMENT OTHER THAN FARMING

	Zones				
% Income Group	All	1	2	3	4
0	74.9%	78.9	68.9	73.5	76.7
1-20	8.4	7.2	12.8	7.9	7.5
21-40	5.1	5.6	8.6	4.0	4.1
41-60	5.9	4.2	6.9	8.8	5.3
61-80	2.9	--	2.7	2.0	4.0
81-100	2.7	4.2	.9	3.9	2.6
	100.0	100.0	100.0	100.0	100.0

Source: Woods Gordon (1983)

APPENDIX A.2.3
OTHER RESOURCE ISSUES

TABLE (A.2.3)-1

THE BENEFITS OF FORESTRY RESOURCE TO THE FARMER (PERCENT)

	Zones				
Rank	All	1	2	3	4
Off-Farm Employment					
1	62.6(334)[1]	62.5(32)[2]	70.2(94)	64.3(56)	57.2(152)
2	17.4	25.0	17.0	16.1	16.4
3	20.1	12.5	12.8	19.6	26.3
Grazing Leases					
1	29.9(268)	27.8(18)	16.3(49)	24.2(33)	35.1(168)
2	40.7	40.0	36.7	42.4	40.5
3	29.5	22.2	46.9	33.3	24.4
Recreation					
1	30.3(310)	40.6(32)	9.1(44)	25.4(59)	35.4(115)
2	30.3	31.3	27.3	40.7	27.4
3	39.4	28.1	63.6	33.9	37.1
Farmer Wood Supply					
1	39.3(382)	50.0(28)	40.9(88)	38.3(60)	37.4(206)
2	37.2	25.0	40.9	35.0	37.9
3	23.6	25.0	18.2	26.7	24.8
Other					
1	48.1 (54)	66.7 (9)	44.4 (9)	62.5 (8)	39.3 (28)
2	27.8	22.1	22.2	12.5	35.7
3	24.1	11.1	33.3	25.0	25.0
No Benefits					
Check	14.1	24.3	4.3	13.6	15.4

1. Read: 62.6% of all respondents felt that the primary benefit of the Forest Resource was as off-farm employment to the farmer.

2. Indicates the number of respondents

Source: Woods Gordon (1983)

TABLE (A.2.3)-2

THE BENEFITS OF FISH AND WILDLIFE TO THE FARMER (PERCENT)

	Zones				
Rank	All	1	2	3	4
Recreation					
1	52.3(444)[1]	68.0(50)[2]	43.8(64)	46.7(75)	52.9(255)
2	33.6	28.0	31.3	40.0	33.3
3	14.0	4.0	25.0	12.0	13.7
Food Supply					
1	55.5(391)	38.2(34)	55.0(60)	55.7(70)	58.1(227)
2	34.0	44.1	33.3	37.1	31.7
3	10.2	17.6	11.7	7.1	9.7
Trapping Income					
1	18.6(210)	31.6(19)	21.3(47)	22.2(36)	13.9(108)
2	33.3	21.1	34.0	22.2	38.9
3	47.1	47.4	44.7	55.6	45.4
Guiding Income					
1	6.5 (62)	--	15.4(13)	12.5 (8)	8.1 (37)
2	17.7	--	76.9	50.0	13.5
3	67.7	100.0	7.7	37.5	67.6
Other					
1	29.0 (31)	40.0 (5)	--	20.0 (5)	30.0 (20)
2	22.6	40.0	--	20.0	20.0
3	48.6	20.0	100.0 (1)	60.0	50.0
No Benefits					
Check	18.7	16.9	29.8	17.3	15.8

1. Read: 52.3% of all respondents felt that the primary benefits of the fish and wildlife resources were for recreation purposes.

2. Indicates the number of respondents

Source: Woods Gordon (1983)

TABLE (A.2.3)-3

THE FARMERS' RANKING OF VARIOUS ACTIVITIES FOR COMMERCIAL VIABILITY (PERCENT)

	Zones				
Rank	All	1	2	3	4
Big Game Ranching					
1	77.6(183)[1]	92.6(27)[2]	68.8(16)	71.9(32)	76.9(108)
2	22.4	7.4	31.3	28.1	23.1
Fur Farming					
1	43.9(107)	46.7(15)	30.0(10)	52.6(19)	42.9(63)
2	56.1	53.3	70.0	47.4	57.1
Game Bird Ranching					
1	30.4(79)	--	25.0(4)	33.3(15)	32.7(55)
2	69.6	100.0	75.0	66.7	67.3
Fish Farming					
1	46.9(98)	38.5(13)	62.5(8)	29.4(17)	51.7(60)
2	53.1	61.5	37.5	70.6	48.3
Other					
1	75.0(4)	--	100.0(1)	66.7(3)	--
2	25.0	--	--	33.3	--

1. Read: 77.6% of all respondents felt that big game ranching had the greatest chance of being commercially successful.

2. Indicates the number of respondents

Source: Woods Gordon (1983)

TABLE (A.2.3)-4

THE FARMERS' VIEWS ON RECREATION OPPORTUNITIES (PERCENT)

	Zones				
Rank	**All**	**1**	**2**	**3**	**4**
Hunting					
1	88.5 (61)[1]	75.0(4)[2]	87.5(8)	83.3(18)	93.5(31)
2	11.5	25.0	12.5	16.7	6.5
Day Use					
1	88.3(179)	90.9(33)	92.5(40)	85.7(28)	85.9(78)
2	11.7	9.1	7.5	14.3	14.1
Overnight Camping					
1	81.9(138)	73.9(23)	80.0(20)	73.9(23)	87.5(72)
2	18.1	26.1	20.0	26.1	12.5
Water Access					
1	89.9(158)	94.9(39)	90.0(30)	90.0(30)	86.4(59)
2	10.1	5.1	10.0	10.0	13.6
Fish Stocking					
1	84.8(125)	88.2(17)	81.8(11)	70.0(20)	88.3(77)
2	15.2	11.8	18.2	30.0	11.7
Other					
1	91.7 (12)	100.0 (2)	100.0 (3)	50.0 (2)	100.0(5)
2	8.3	--	--	50.0	--

1. Read: 88.5% of all respondents who felt that there was a need to expand outdoor recreation opportunities felt that the most important type of recreation opportunity needed was for hunting.

2. Indicates the number of respondents

Source: Woods Gordon (1983)

TABLE (A.2.3)-5
FACTORS ASSOCIATED WITH ACQUIRING CROWN LAND

FACTORS	LEVEL OF SATISFACTION		
	HIGH	MED.	LOW
The process	18.1%	33.7%	48.7%
Factors for approval of application	26.7	37.3	36.0
Cost of purchasing land	29.3	30.7	40.0
Amount of land	22.2	43.1	34.7
Location of land	27.8	51.4	20.8

Source: Woods Gordon (1983)

APPENDIX A.2.4

THE FARMER SURVEY: QUESTIONNAIRE

Woods Gordon

THE DEVELOPMENT OF NEW AGRICULTURAL LAND IN NORTHWESTERN ALBERTA

MAIL QUESTIONNAIRE TO FARMERS

CONTACTS

If you have any questions regarding this study please call:

Mr. David Douglas,

Mr. Richard Nuxoll,

or Mr. Peter Laipnieks
of Woods Gordon
Phone: (collect) 0-423-5822

OR

Mr. Rick Sloan
Project Director
Northern Development Branch
2nd Floor, Provincial Bldg.
9621 - 96 Avenue
Peace River, Alberta
Phone: (collect) 0-624-6274

MAIL QUESTIONNAIRE TO FARMERS

QUESTIONNAIRE INSTRUCTIONS

This questionnaire should take about 15 minutes to complete. Most questions can be answered by simply placing a check (✓) mark in the appropriate box or boxes. Some questions, however, will require numbering (e.g. 1, 2, 3 ...).

Please read the full questionnaire first to familiarize yourself with the questions, and then answer each question carefully.

If at any time you want assistance, or have any questions, please call 0-423-5822 (collect) and ask for:

- Peter Laipnieks

or

- Richard Nuxoll

or

- David Douglas

YOU AND YOUR FARM

1. What age are you? (Please check ☑ appropriate age group)

AGE GROUP	
Under 20	☐
21-30	☐
31-40	☐
41-50	☐
51-60	☐
61 and over	☐

2. How long have you been farming at your present location?

☐ years

3. What is the present size of your farm: (acres)

	Owned	Leased	Total
Cultivated			
Unimproved			
Total			

4. How much land on your farm has been cleared since you started farming it?

☐ acres

5. How much additional land could be cleared for farming on your present farm?

☐ acres

6. What percent of your total family income (i.e. from all members of the household) comes from the following sources? (Only put percentages in the appropriate boxes.)

	Farming
	Services (teacher, nurse, sales, government, employment, etc.)
	Oil & Gas
	Construction or Manufacturing
	Forestry
	Trapping
	Guiding and Outfitting
	Other - Please specify ______________
100%	(should add to 100%)

7. What percent of your farm income comes from the following: (please put percentages in appropriate box(es))

	Grain (cereals & oilseeds)
	Livestock
	Specialty Crops (grass seed, etc.)
	Other - Please specify ______________
100%	(should add to 100%)

8. (a) Which elevator delivery point do you generally deliver your grain to: ☐ Town

(b) What is the one-way distance by road to this point? ☐ Miles

9. Have you ever applied for crown land?

☐ Yes

☐ No

If "no", please go to Question 14. ⟶

10. Have you ever purchased crown land from the Provincial government?

☐ Yes

☐ No

If "no", please go to Question 14. ⟶

11. From your experience in purchasing and developing crown land, please indicate the order of difficulty (if any) which you have experienced for the following factors. (Please check ☑ one box only in each row)

	ORDER OF DIFFICULTY			NO DIFFICULTY
	HIGH	MED.	LOW	
High cost of clearing and breaking land	☐	☐	☐	☐
Lack of roads	☐	☐	☐	☐
Long distance (and cost) to the elevators	☐	☐	☐	☐
Lack of available schools, health services, etc.	☐	☐	☐	☐
Lack of available credit	☐	☐	☐	☐
High cost of credit	☐	☐	☐	☐
Other (please specify) ____________ ______________________	☐	☐	☐	☐

Other comments ____

____

____

12. From your experience in acquiring crown land, please indicate your level of satisfaction with the following items. (Please check ☑ one box only in each row.)

	YOUR LEVEL OF SATISFACTION		
	High	Medium	Low
The Process (e.g. the way notice was given, the time taken, the appeal process, etc.)			
Factors for Approval of the Applications (e.g. must be a local farmer, must demonstrate financial security, must demonstrate farming ability, etc.)			
Cost of purchasing land			
Amount of land			
Location of land			
Other (please specify) __________________			

Comments ____

____

____

☐ No opinion

13. Why were you interested in acquiring crown land? (Please indicate the importance of each factor below, and any other factor, by checking ☑ the appropriate box in each row.)

	DEGREE OF IMPORTANCE			NOT IMPORTANT
	HIGH	MED.	LOW	
High cost of acquiring developed land	☐	☐	☐	☐
Lack of available developed agricultural land	☐	☐	☐	☐
Lack of available undeveloped agricultural land	☐	☐	☐	☐
Other (please specify) A. ______________________	☐	☐	☐	☐
B. ______________________	☐	☐	☐	☐

THE FUTURE

14. Do you plan to increase your farm production?

☐ Yes

☐ No

If "no", please go to Question 19. →

15. If "yes", please rank below the 4 ways and means which you would select to increase your farm production by putting in numbers 1 to 4 (your "most preferred" = 1, your "second most preferred" = 2, your "next preferred" = 3, and your "final preference" = 4).

☐ Expand cultivated area of present farm
☐ Increase fertilizer use, more drainage, etc. to raise productivity of presently cultivated land
☐ Additional livestock
☐ Additional speciality crops (additional forage, seed, etc.)
☐ Purchase more already developed land
☐ Lease already developed land
☐ Purchase undeveloped crown land
☐ Other (please specify) ____________
____

16. (a) If you yourself do not require more land, please check here and go to Question 19. ⟶ ☐

(b) If you yourself want more land, please specify why? (Check appropriate box) ☑

☐ Want to expand my present farm
☐ Want to relocate to a new farm
☐ Other (please specify) ____________
____

17. (a) If you want to expand your present farm, how far from your present operation would you be willing to travel? miles

(b) If you want to relocate to a new farm, how far from your present operation would you be prepared to move? miles

18. Assuming you could get the amount and type of land you require, please indicate below:

- how much land you expect to need
- when you will need it
- the use
- which type (i.e. crown or patented) you would acquire

NOTE:

"Patented Land" is land held in private ownership.

If you don't have information on what you need at this time, or if you haven't made any plans as yet for your land requirements, leave the appropriate parts of this table blank.

	1983-86		1986-1991		After 1991	
LAND USE	Crown Land	Patented Land	Crown Land	Patented Land	Crown Land	Patented Land
Grain	acres	acres	acres	acres	acres	acres
Forage	acres	acres	acres	acres	acres	acres
Improved Grazing	acres	acres	acres	acres	acres	acres

19. Do you think the development of additional crown land is generally desirable in your area? (Check ☑ appropriate box)

☐ Yes

☐ No

☐ Don't know

If "no" or "don't know", please go to Question 21. →

20. If "yes", how should land be provided? (Please check ☑ the appropriate box or boxes)

By opening areas adjacent to present agricultural lands ☐

By opening blocks of new lands distant from existing agricultural areas ☐

No opinion ☐

Other comments ______________________________

____

____

YOUR FAMILY'S NEED FOR LAND

21. Do any members of your family currently living with you (e.g. brothers, sisters, sons, daughters) and who do not own their own farm, want land for farming?

> NOTE: Please give this question some thought.
>
> Only answer "yes" if you are sure certain members of your family will in fact go into farming on their own.
>
> If you want them to take up farming, but are not yet sure whether they will or not, answer "no".

☐ Yes

☐ No

If "no", please go to Question 23. ⟶

22. If "yes", please estimate when they will need this land and how much land.

Family Member 1

1983-1986	1986-1991	After 1991
acres	acres	acres

Family Member 2

1983-1986	1986-1991	After 1991
acres	acres	acres

Family Member 3

1983-1986	1986-1991	After 1991
acres	acres	acres

Any Others
(Please total)

1983-1986	1986-1991	After 1991
acres	acres	acres

FORESTRY, FISH AND WILDLIFE AND OTHER REGIONAL RESOURCES

23. Please give us your view on the importance of forestry to your local community economy. (Check ☑ only one box).

☐ Very Important

☐ Important

☐ Not Important

☐ Don't Know

24. Do you believe that there is enough timber devoted to farmer use in your area? (Check ☑ only one box).

☐ More Than Enough

☐ Enough

☐ Not Enough

☐ Don't Know

25. What are the 3 main benefits (if any) to you, and your family of the forest resource? (Using 1 to 3, list in order of priority, "most important" = 1, "second most important" = 2, third most important" = 3)

☐ Off-farm employment
☐ Grazing leases
☐ Recreation
☐ Farmer wood supply
☐ Other (please specify)

____

____

No benefits (Please check if appropriate) ☐

26. For harvesting your own farm lumber supply (e.g. fence posts, boards), how far are you willing to travel?

☐ Miles

27. Please give us your view of the importance of fish and wildlife resources (e.g. hunting, guiding, trapping) to your local community economy?

☐ Very Important
☐ Important
☐ Not Important
☐ Don't Know

28. What are the 3 main benefits (if any) to you and your family of the fish and wildlife resources? (Using 1 to 3, list in order of priority, "most important" = 1, "second most important" = 2, "third most important" = 3)

☐ Recreation
☐ Food supply and other provisions
☐ Trapping income
☐ Guiding income
☐ Other (Please specify) ____________

____

____

No benefits (Please check if appropriate) ☐

29. Do you feel that game ranching on patented land could be commercially viable in Northern Alberta?

☐ Yes

☐ No

☐ Don't Know

If "no" or "don't know", please go to Question 31. ⟶

30. If "yes", which of the following activities do you believe have the greatest chance of being commercially successful? (Please number only the "best" = 1 and the "next best" = 2)

☐ Big game ranching
☐ Fur farming
☐ Game bird ranching
☐ Fish farming
☐ Other - Please specify ____________

____

31. Do you feel there is a need to expand outdoor recreation opportunities for public use in your area? (Please check ☑ appropriate box).

☐ Yes

☐ No

☐ Don't Know

If "no or "don't know", please go to Question 33. ⟶

32. If "yes", please indicate the 2 most important types of recreation opportunities which you would like to see developed? (Please check ☐ only 2 boxes)

☐ Hunting
☐ Day use (e.g. picnics, swimming)
☐ Overnight camping
☐ Water access for fishing (e.g. boat launches)
☐ Fish stocking
☐ Other (please specify) ____________________

____

SUMMARY COMMENTS

33. Please let us have any other comments which you would like to make regarding agricultural development in Northwestern Alberta.

34. Please let us have any other comments which you would like to make regarding forestry, fish and wildlife and other regional resources in Northwestern Alberta.

****

PLEASE PUT THE COMPLETED QUESTIONNAIRE IN THE STAMPED ADDRESSED ENVELOPE PROVIDED AND MAIL IT TO US AS SOON AS POSSIBLE.

WOODS GORDON
1700 Continential Bank Building
10250 - 101 Street
Edmonton, Alberta T5J 3P4

THANK YOU VERY MUCH FOR TAKING THE TIME AND EFFORT REQUIRED TO COMPLETE THIS QUESTIONNAIRE.

APPENDIX A.2.5
THE OTHER CROWN LAND APPLICANTS SURVEY: QUESTIONNAIRE

Woods Gordon

MAIL QUESTIONNAIRE TO
CROWN LAND APPLICANTS

This questionnaire should take about 10 minutes to complete. Most questions can be answered by simply placing a check (✓) mark in the appropriate box or boxes. Some questions, however, will require numbering (e.g. 1, 2, 3 ...).

Please read the full questionnaire first to familiarize yourself with the questions, and then answer each question carefully.

If at any time you want assistance, or have any questions, please call 0-423-5822 (collect) and ask for:

- Peter Laipnieks

or

- Richard Nuxoll

or

- David Douglas

ABOUT YOU

1. What age are you (please check ☑ appropriate age group)

AGE GROUP	
Under 20	☐
21-30	☐
31-40	☐
41-50	☐
51-60	☐
61 and over	☐

2. Are you currently farming?

Yes ☐

No ☐

3. If "no", have you ever farmed?

Yes ☐ FROM 19 TO 19

No ☐

4. If "no", what is your present job? ☐

5. Do you still require land in Northwestern Alberta?

Yes ☐

No ☐

If "no", please go to Question 12. ————

YOUR PLANS

6. If you require land in Northwestern Alberta, why do you want it?

(Check ☑ appropriate box(es)

☐ Need to expand my farm unit

☐ Want to relocate

☐ Want to enter farming (first time)

☐ Want to re-enter farming

☐ Want to supplement my other business and employment income

☐ Other - Please specify ______________________

____

7. Assuming you could get the amount and type of land you require, please indicate below:

- how much land you expect to need
- when you will need it
- the use
- which type (i.e. crown or patented) you would acquire

NOTE:

"Patented Land" is land held in private ownership.

If you don't have information on what you need at this time, or if you haven't made any plans as yet for your land requirements, leave the appropriate parts of this table blank.

	1983-86		1986-1991		After 1991	
LAND USE	Crown Land	Patented Land	Crown Land	Patented Land	Crown Land	Patented Land
Grain	acres	acres	acres	acres	acres	acres
Forage	acres	acres	acres	acres	acres	acres
Improved Grazing	acres	acres	acres	acres	acres	acres

8. Where do you want to farm? (Please check ☑ appropriate box)

Anywhere in Northwestern Alberta ☐

Other ☐ Please give location ____________________

____

9. If you have had experience in acquiring and developing crown land, please indicate the order of difficulty (if any) which you have experienced for the following factors. (Please check one box only in each row).

If "no experiences" please check here ☐,

and go to Question 11 ————

	ORDER OF DIFFICULTY			NO DIFFICULTY
	HIGH	MED.	LOW	
High cost of clearing and breaking land				
Lack of roads				
Long distance (and cost) to the elevators				
Lack of available schools, health services, etc.				
Lack of available credit				
High cost of credit				
Other (please specify) ____________ ____________				

Other comments ____________________________________

____

____

10. Why were you interested in acquiring crown land? (Please indicate the importance of each factor below by checking ☑ one appropriate box in each row.)

	DEGREE OF IMPORTANCE			NOT IMPORTANT
	HIGH	MED.	LOW	
High cost of acquiring developed land	☐	☐	☐	☐
Lack of available developed agricultural land	☐	☐	☐	☐
Lack of available undeveloped agricultural land	☐	☐	☐	☐
Other (please specify) ____________ ____________	☐	☐	☐	☐

Other comments ____

____

____

____

11. On the basis of your experience in applying for crown land, please indicate your level of satisfaction with the following items.

If no experience, please go to Question 12. ———

	YOUR LEVEL OF SATISFACTION		
	High	Medium	Low
The Process (e.g. the way notice was given, the time taken, the appeal process, etc.)			
Factors for Approval of the Applications (e.g. must be a local farmer, must demonstrate financial security, must demonstrate farming ability, etc.)			
Cost of purchasing land			
Amount of land			
Location of land			
Other (please specify) ________________			

Other comments ____

____

____

No opinion ☐

12. How should land be provided (please ☑ check the appropriate box or boxes)?

By opening areas adjacent to present agricultural lands ☐

By opening blocks of new lands distant from existing agricultural areas ☐

No opinion ☐

13. Please let us have any other comments which you would like to make regarding agricultural development in Northwestern Alberta.

____

____

____

____

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____

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____

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PLEASE PUT THE COMPLETED QUESTIONNAIRE IN THE STAMPED ADDRESSED ENVELOPE PROVIDED AND MAIL IT TO US AS SOON AS POSSIBLE.

THANK YOU VERY MUCH FOR TAKING THE TIME AND EFFORT REQUIRED TO COMPLETE THIS QUESTIONNAIRE.

WOODS GORDON

SECTION 3.1

CONTENT ANALYSIS OF COMMENTS CONTAINED IN THE FARMER QUESTIONNAIRES

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CONTENT ANALYSIS OF COMMENTS CONTAINED IN THE FARMER QUESTIONNAIRES

3.1.1 Introduction: The Application of the Content Analysis Method

In many surveys of the public, space is left in the questionnaire for comments, more often than not as a courtesy or a formality, and is very often ignored by both respondent and researcher alike. The Survey of Farmers in Northwestern Alberta was exceptional in this regard, since farmers took full advantage of this opportunity to write down their views, and those conducting the survey determined to capitalize on this information bonus.

The scope of the content analysis was restricted to questions 9, 10, 33 and 34, which were the four most critical questions. These dealt specifically with farmers' experiences in acquiring and developing new land and sought their views on agricultural as well as other resource development in Northwestern Alberta.

3.1.2 Benefits of the Content Analysis

The relevance of a content analysis was confirmed by the extraordinary number of comments included by respondents. From the 500+ returns received by the date of the interim analysis in this study, nearly 1,000 comments on separate issues were recorded, and augmented the survey in the following ways:

1. The comments comprised a wealth of data which would otherwise be omitted by standard statistical analysis of quantitative data.
2. The data is far from trivial, and it would have been a disservice to respondents to overlook it entirely.

QUESTIONS TAKEN FROM THE FARMER SURVEY USED IN THE CONTENT ANALYSIS

Question 9

If you have had experience in acquiring and developing crown land, please indicate the order of difficulty (if any) which you have experienced for the following factors. (Please check one box only in each row).

If "no experiences" please go to Question 11 ————>

	ORDER OF DIFFICULTY			NO DIFFICULTY
	HIGH	MED.	LOW	
High cost of clearing and breaking land				
Lack of roads				
Long distance (and cost) to the elevators				
Lack of available schools, health services, etc.				
Lack of available credit				
High cost of credit				
Other (please specify) ________ ____________________				

Question 10

Why were you interested in acquiring crown land? (Please indicate the importance of each factor below by checking the appropriate box in each row.)

	DEGREE OF IMPORTANCE			NOT IMPORTANT
	HIGH	MED.	LOW	
High cost of acquiring developed land				
Lack of available developed agricultural land				
Lack of available undeveloped agricultural land				
Other (please specify) ________ ____________________				

SUMMARY COMMENTS

Question 33

Please let us have any other comments which you would like to make regarding agricultural development in Northwestern Alberta.

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SOURCE: Woods Gordon 'Farmer Survey', 1983.

3. Farmers had confidence in the survey as a medium for getting their point of view across. The content analysis of the "comments" fulfills a primary goal of the survey, which was to learn the personal views, priorities and concerns of farmers in their own language.

4. Content analysis of the comments complements the structured questions, and renders groundless any criticism that the closed-ended question format might be too rigid, and forced the respondent to choose a given alternative. The comments enabled respondents to answer in a way that best reflected their own situation.

5. In substance, the comments corresponded largely to what were thought to be the key variables and confirmed the relevance of the questions asked as defining the issues involved in the development of new land for agriculture.

6. Content analysis revealed that comparable sets of comments were made at the end of the questionnaire as were recorded earlier in the questionnaire. In effect, this internal check confirmed the reliability of the findings of the content analysis, since repeated measurement had yielded similar results.

3.1.3 Classification of Issues - Questions 9, 10 and 33 - Comments Regarding Acquiring and Developing Agricultural Land in Northwestern Alberta

For the purposes of the content analysis, questions 9, 10 and 33 can be treated as one question, since there was no real distinction in the comments that each question provoked. The questions appear on the page opposite.

The classification system devised for the content analysis parallels the questions, but simplifies them to three main categories of topics; namely land for agriculture, credit and government financial assistance, and dealing with government. An additional category - regional geographical factors - which further develops a subsidiary theme in the questionnaire, was warranted by the number of comments referring to the regional aspects of problems confronting farmers in Northwestern Alberta. A final cate-

TABLE 3.1.1

Questions 9, 10 and 33

Comments regarding agricultural development in general in Northwestern Alberta.

ISSUE	NUMBER OF COMMENTS	%
1. **Land for Agriculture**		
(a) Land/development costs	218	30
(b) Supply of land	93	13
	311	43
2. **Dealing with Government**		
(a) Process, government regulations and personnel	107	15
(b) Selection criteria/approval of applicants	93	13
	200	28
3. **Geographical Factors - Regional Character of Northwestern Alberta**		
(a) Environmental conditions	29	4
(b) Locational factors	66	9
	95	13
4. **Credit/Government Financial Assistance**		
(a) Availability	21	3
(b) Cost	26	3
	47	6
Miscellaneous/Non-Classified Comments	74	10
Total Number of Comments	727	100

gory was added, for miscellaneous comments that did not readily fall into any of the main classifications.

These issues and their sub-issues are displayed in Table 3.1.1 (page opposite), along with the number of comments on each issue.

3.1.3.1 Land for Agriculture

There were a total of 311 comments regarding this issue. This equals 43% of all the comments (727) received from the three questions 9, 10, and 33.

(a) Land/Development Costs

The cost of land issue received by far and away the largest number of comments (218 of 311), almost 1 in 5 of all the comments (727) made in the survey.

The belief that crown land costs too much is sustained by three widely-held views. First, the original purchase price is too high. Second, the costs of clearing and breaking and developing it to seed-bed condition are very high. Third, crown land was much less expensive and easier to obtain in the past. This third factor is a legacy in the minds of older farmers that has been handed down in the expectations of newer farmers. Many farmers have reached the conclusion that there is very little difference in cost between purchasing and developing crown land and buying already improved, titled land. The only significant difference between these alternatives is that there is more crown land available, and financing terms for crown land are more attractive.

One farmer submitted his estimate of the final cost of developing crown land, which amounted to $42,400 for a 160 acre homestead. The cost breakdown is shown in Table 3.1.2 following:

TABLE 3.1.2

COST OF DEVELOPING 160 ACRE HOMESTEAD

Item	Cost per acre	Expenditure
Crown Land purchase	$ 70	$11,200
Brushing: cut and pile	125	20,000
Breaking	35	5,600
Clean-up, windrow, root pick-up	20	3,200
Working down, breaking	15	2,400
		$42,400

If these cost estimates accurately depict the up-front capital expenditures of developing new land (and these costs closely parallel costs presented later in this Report), such a financial burden creates a severe obstacle for new farmers to become successful. Starting farming or expanding present farm operations this way was widely viewed as making little financial sense in the present economic climate of farming. There was a general conclusion that at the present time farming was uneconomic, that from a purely investment decision standpoint, agriculture was not a good investment, because the returns from agriculture were low due to prevailing high costs and low market prices conditions. These bore down harder on starting farmers and those relying on clearing land to expand their operation, due to the extra time-lag between investing in the farm and getting any return. Consequently there was a high risk of failure.

A different kind of reaction to the high cost of crown land is the notion, expressed in 6 comments, that bringing new land into agricultural production in itself contributes to the wider economy and that is a sufficient return to the government. The farmer earns his land by working it, and should have to pay nothing for it - a modern-day version of the homestead ethic.

While some of the more pessimistic doubted whether any amount of government assistance would ever be enough to make a successful start, others were still willing to try. Ten comments were recorded indicating that government should cover more of the cost of developing land. Farmers seem to prefer to invest their limited capital in land as a lump sum, rather than see it swallowed up continuously by expensive improvements.

(b) Supply of Land

The availability of land received 93 comments (13%), of which almost half referred to an overall lack of land for farming in the region, and given the finite amount of land for agriculture, these farmers expected a growing scarcity of land in the future. Five respondents commented that more grazing areas were needed.

A subsidiary issue to the overall supply of land in the region, was the response (24) relating to the amount of land awarded to applicants. Those commenting were equivocal as to whether the amounts being awarded were too large or not large enough.

Either for purposes of equity or ease of regulation the present land disposition process transfers uniform amounts of land to all applicants. Judging by the comments, a more sensitive process is required to accomodate starter farmers, who need larger amounts of land so the size of their farm unit is adequate to allow them, over time, to reach an economic scale of operation. The process also needs to cater to existing farmers, who need relatively small additions to the land they are working.

The remaining comments (35) could be grouped as relating to the location of land. Thirteen comments mentioned the poor quality of land that was being made available when better quality land was not being released. It was remarked that some of the land being opened up for farming would be better left for non-agricultural use because it was characterized by steep slopes, or was in low-lying, poorly drained areas, or had low-quality soil. Ideally land adjoining existing farms and farmland was wanted, as ten respondents commented, but as one farmer wistfully observed, such land always attracted the greatest number of bids. There were pleas for more land in particular areas - specifically Hawk Hills, High Level, La Crete, Manning, which were the only areas to receive even a single comment.

3.1.3.2 Dealing with Government

There were a total of 200 comments regarding this issue. This equals 28% of all the comments (727) received from the three questions 9, 10 and 33.

(a) The Process, Government Regulations and Personnel

About half the government related comments were about the length of time between application and notification of the Land Board's (i.e. Land Disposition Branch) decision. Some commented that a two-year delay was usual, others said it took up to four years. It meant a long period of uncertainty for the farmer, and often proved to be a costly delay, as the price of land was rising all the time, from $12 per acre when applying to $28 per acre on approval, or in another case from $18 per acre to $33 per acre. Farmers considered these delays to be unnecessary and attributed the length of time taken processing applications to the inefficiency of civil servants.

Government officials are not held in particularly high regard by some farmers, who accused them of having a belligerent attitude, of being patronizing, and "playing God". These negative feelings extend to land inspectors, who are thought to be inexperienced, not being knowledgeable about farming, or over-zealous in the enforcement of lease/homestead regulations. On this last point, there were as many who thought inspectors were too lax on "slow-poke" leaseholders (5) as there were requesting more time to comply with the stipulations of the lease agreement.

There were six favourable comments about the job government employees were doing. In fact, these farmers saw a greater role for government specialists, especially in agricultural extension services, such as providing information and advice on government programs and assistance available, weed control, soil conservation methods and soil testing.

(b) Selection Criteria/Approval of Applicants

Of the 93 comments (13%) recorded on this sub-issue, 34 were a statement that somehow farmers' sons, young farmers and young would-be farmers could not readily obtain land in the region and this threatened the long-term growth and stability of their community. The people receiving land were thought in many cases to be undeserving speculators, persons with little experience of farming or hobby farmers rather than genuine local farmers.

Although there was no fundamental disagreement with the criteria for selection as laid down, there was a considerable degree of skepticism about whether in the actual decisions that are made, the necessary qualifications of applicants are in fact the basis for selection. This feeling that not all applicants had an equal chance was even more pronounced in relation to the workings of the "Local Appeal Boards", which were not thought to be absolutely impartial, and aroused suspicions of favouritism and inside deals. The distrust of the present system of selection is signified by a couple of comments from those desiring a return to the old draw system for land applications.

3.1.3.3 Geographical Factors - Regional Characteristics of Northwestern Alberta

There were 95 comments regarding this issue. This equals 13% of all the comments (727) received from the three questions 9, 10 and 33.

The large number of comments made in this category is evidence of a strongly-developed regional consciousness that has a pervasive influence on residents' views on agricultural development.

Although agriculture is a demonstrated fact in Northwestern Alberta, in spite of the region's position as the northernmost agricultural area in Canada, it is nevertheless in a geographical sense, marginal. Agriculture in the region can also be considered marginal in terms of its economics. The geographical factors affecting the region are a function of environmental conditions found there - the forces of nature - and locational relationships within the area and linkages to the outside - as reflected in human settlement patterns and the transportation network.

(a) Environmental Conditions

Twenty-nine (29) comments were made about the environmental conditions farmers in Northwestern Alberta have to cope with. Late frosts in springtime and early frosts in fall mean the average growing season is short. Excessive moisture is a common problem, either because of heavy rains or due to poor drainage. Farmers want to see agricultural research develop early crop varieties for the region. They also realize that operating costs in the North are higher and that they can expect lower crop yields and lower returns than farmers further south.

(b) Locational Factors

Thirty-six (36) of the 66 comments relating to locational factors were an expression of the relationship between agricultural-rural development, and the growth and development of urban centres whose function is to provide services for the rural population.

Due to the relatively sparsely settled character of the region, the availability of services is not always adequate, and seven comments were made about this, suggesting that this may be a relatively small issue. These comments ranged from the lack of roads, to the smallness of communities, which are not sufficiently large to support either higher order commercial services, or education and health services, forcing residents to go long distances to gain access to such services.[1]

In eleven (11) of the comments, respondents indicated that it was production services, rather than personal/community services that were lacking. This is almost certainly a function of the make-up of the survey population, and reflects the special interests of the farmer-businessman respondents. Specific services that were required by the agricultural sector were processing and packing plants, a tannery, livestock markets and equipment and machinery suppliers.[2] In particular, the need for more elevators was mentioned seven times.[3]

The transportation infrastructure, both internally and to the outside, was commented on 17 times. More access roads to new land were needed. More of these should be gravelled and more gravelled roads paved. There were three comments about the Tompkins Ferry, on its slowness of operation and the short length of the deck. Generally transporting commodities to external markets would not appear to be a pressing issue but the high freight costs of moving goods and products to and from the region was commented on six times and in this context opposition was voiced against any move to abolish the Crow Rate.

If the regional disadvantage of being distant from markets is clearly felt, at the same time, the regional advantage of having an abundant water resource is also keenly inscribed in residents' minds. There were three emphatic comments resolutely opposing any water transfer to the south from the Peace River, on the grounds that retaining the water resource is essential for the full potential of the Northwest to be realized.

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1. Comments of farmers in the High Level and La Crete areas.
2. Six of the comments were from farmers in the High Level area, 2 were from Fort Vermilion, [illegible] each from Keg River, Valleyview and Sunset House.
3. Three of the comments were from farmers in the La Crete area, 3 were from Valleyview-Fox Creek, 1 was from High Level.

3.1.3.4 Credit/Government Financial Assistance

There were 47 comments regarding this issue. This equals 6% of all the comments (727) received from the three questions 9, 10 and 33.

(a) Availability of Credit/Loans

There were 21 comments referring to the availability of financial assistance to farmers. Many of these comments referred to the size of loans, and wanted amounts tailored to the individual farmer's particular financial needs. Some wanted small loans - $20,000, when only medium sized loans are available. Others wanted $100,000 financing, well above the usual amount of $50,000 offered by the government. Government assistance was also wanted to defray the cost of clearing and developing land.

Interim financing is needed to cover the cash flow shortage during the time between obtaining crown land and when it is productive and generating income for the farmer. The government is the only real source of capital needed for improvements to crown land, since the commercial banks are unwilling to lend money to farmers who have only untitled crown land as collateral.

When referring to the importance of A.D.C. financing, one farmer stated that it allowed him to stay in farming. On the other hand, a farmer whose loan application was rejected by A.D.C., reported bitterly that he had to go to commercial banks and pay market rates for financing.

It is noteworthy that four (4) farmers had an opposing view about government finance. They declared their belief in "self-initiative", evoked the virtue of thrift, and using savings to re-invest in agriculture. This division of opinion points out the inherent contradiction of government financial assistance to the agricultural sector, being required but very often not wanted by the farmers, who see themselves as independent, self-reliant and their own boss.

QUESTION TAKEN FROM THE FARMER SURVEY USED IN THE CONTENT ANALYSIS

Question 34

Please let us have any other comments which you would like to make regarding forestry, fish and wildlife and other regional resources in Northwestern Alberta.

SOURCE: Woods Gordon 'Farmer Survey', 1983.

(b) Cost of Borrowing

Seven (7) comments were made about interest charges. The recent experience of unprecedented high interest rates has had a marked impact on farm economics. For farmers, the problem of interest rates is acute, because loan repayments represent a high fixed cost, whereas the returns to farmers vary with fluctuating product and commodity market prices. There are calls by some for fixed, subsidized interest rates. Without this guarantee, farmers reported that they were reluctant to borrow, fearing another general rise in interest rates.

3.1.3.5 Miscellaneous/Non-Classified

There were 74 comments regarding this issue. This equals 10% of all the comments (727) received from the three questions 9, 10 and 33.

Seventy-four (74) comments were recorded on a variety of topics that could not easily be grouped with any of the major categories in the classification system. However, two issues emerged around which many of the comments could be clustered. About 10 comments related to the need for a secondary income to be able to farm. Another 38 could loosely be described as concerning resource management and conservation themes.

Ten (10) comments were recorded indicating that farming could be carried on only if it were subsidized by income from off-farm employment. Being this type of farmer can put an individual in an awkward position. His status as a farmer is in doubt, for income tax purposes, and when applying for crown land. Other full-time farmers may not consider him a genuine farmer, but a "hobby-farmer". Being able to devote only part of his time to the farm has important implications for the type of farm operation he can undertake. It has to be grain/oilseed farming, since raising livestock is impracticable with its daily demands on a farmer's time. The reduced amount of time part-time farmers can put into their farms is resented by full-time farmers who see land sitting idle, tied up by a part-timer who has not been able to work on it.

Of the 38 comments involving resource management, 22 adopted a "wise use", almost conservationist stance. The regional consciousness in Northwestern Alberta again is apparent in the view that the agricultural potential of the region occupies a special place as a reserve of cultivable land in provincial, national and even global plans to expand food production. Therefore, in accordance with the principle of the highest-use of land, agriculture should take precedence over forestry and oil and gas. Resources of the land should not be wasted or abused - timber cleared off land should be utilized not burnt in wind-rows, and wildlife habitat should be preserved.

A small number (7) commented that title or ownership was the best way of ensuring proper use. They wanted the Green Area turned over to ranchers for grazing and stated that all crown land should ultimately be disposed of and be assigned to private ownership.

A third group saw good management of the land in terms of efficiency. These 10 respondents questioned the strategy of agricultural development by opening up new land. The real priority in their view was to improve the existing agricultural situation. They wanted such items as better market prices for farm products and the upgrading of the agricultural infrastructure, like elevators and freight services. Increasing agricultural production without remedying the existing deficiencies in this infrastructure would only aggravate them. If output were to be increased, it made better sense, according to these respondents, to make maximum use of present farming areas, revive abandoned land, and get unused farmland into production, before new areas were opened up.

3.1.3.6 Summary - Questions 9, 10 and 33

The findings of the content analysis for these questions indicate that, based on the comments of over 500 respondents, the following are priorities for agricultural development:

1. Land for Agriculture
    - this issue has overriding importance, receiving 1/3 of total comments, specifically farmers are concerned about
    - the high initial purchase price of crown land
    - the additional costs of developing it
    - the limited amount of land that is available for agriculture

2. Dealing with Government
    - this is the second major issue
    - the land disposition process is lengthy
    - government regulations can be restrictive
    - relationship with government personnel are not always cordial, nor based on mutual respect
    - confidence is lacking in the way in which farmers are selected to be awarded land

3. Geographical Factors
    - environmental conditions can create severe difficulties for farmers
    - agricultural support services more than the social infrastructure need further development

4. Credit/Government Financial Assistance
    - farming is a very capital-intensive business
    - government is the principal source of finance for new land
    - financial assistance on more generous terms would benefit farmers

5. Miscellaneous/Non-Classified
    - for many, off-farm income is needed to subsidize farming
    - some wanted agriculture to develop primarily by expanding the agricultural area, others by increasing the efficiency of the present agricultural system

3.1.4 Question 34 - Comments Regarding Fish and Wildlife, Forestry and Other Regional Resources in Northwestern Alberta

The economy of Northwestern Alberta is almost entirely resource-based. Economic development has been achieved by exploiting the resource wealth of the region, and this path of development will continue to be followed for the foreseeable future. The rate, manner and type of resource development that takes place is of critical importance to the growth of the region, and presents a formidable challenge in resource management.

Since natural resources are owned by the Province in the name of the people of Alberta, the task of resource management is largely a government responsibility. However, the agents of development are individual farmers, and private resource companies, large and small, supervised by an administrative framework through which government officials carry out their mandate. Therefore, the acceptance of public management of resources rests to a considerable extent on how responsive it is to the public's wishes.

The Survey represents one means of obtaining public input on resource matters, so the scope of the questionnaire was broadened in question 34 to seek input from farmers about resource development in general (page opposite). Perhaps because they are among those who are concerned first-hand with the day-to-day practical issues of resource management, farmers in Northwestern Alberta seem to be acutely aware of the importance of resources, and had almost 250 comments about them. These have been classified and are set out in Table 3.1.4 (page overleaf).

3.1.4.1 The Wildlife Resource

There were 93 comments regarding this issue. This equals 38% of all the comments (247) received from question 34.

Of the 247 comments about resource development in general, almost half (93) were in connection with the Wildlife Resource.

(a) Hunting Regulations and Practices

Thirty-one (31) comments were recorded on this sub-issue, nearly one third of which were comments about hunting by Native people. It was felt that Natives hunting out of season, having no restriction on the numbers

TABLE 3.1.4

Comments regarding fish and wildlife, forestry and other regional resources in Northwestern Alberta.

ISSUE	NUMBER OF COMMENTS	%
1. The Wildlife Resource		
(a) Hunting regulations and practices	31	13
(b) Decline in game animal numbers/greater protection for Big Game	25	10
(c) Problem/nuisance wildlife	25	10
(d) Game-farms/trapping/guiding	12	5
	93	-38
2. The Forestry Resource		
(a) Forestry management	31	13
(b) Forest leases	27	10
	58	23
3. The Recreation Resource		
(Not mentioned in the statement of the question but regarded by residents as an important regional resource)	34	14
4. Resource Management and Competing Uses Between Resource Sectors		
(a) Fish and Wildlife land use controls	24	10
(b) Optimal resource management of competing and conflicting resource sectors	38	15
	62	25
Total number of comments	247	100

of game taken, was resulting in overhunting of wildlife.[4] Coupled with this issue were another three comments that stronger measures and greater action were needed against poaching. There were 12 comments opposing hunting in the settled area, on farmland or on private land. Farmers bemoaned hunters' lack of awareness of and respect for landowners' rights. Bad and nuisance hunters could be typified as those not closing gates, driving over crops, not bothering to recover the game they shot, or mistaking livestock for game animals. Some called for a hunting ban, or for only local people to have complete hunting privileges, including the right to hunt legally on their own land without a licence.

(b) Greater Protection For Big Game/Decline In Animal Numbers

Twenty-five (25) comments noted a serious decline in the amount of game in the region and these respondents wanted to allow the numbers of big game animals to build-up and be restored to previous levels.

To alleviate the hunting pressure on big game species, farmers suggested some of the following game management measures to provide greater protection for the threatened animals. Six wanted a shorter season and four were willing to see the big game hunting season completely closed for 2-3 years, while five were of the opinion that fewer hunting permits should be issued, so as to exclude American hunters and allow only residents of Canada to hunt. According to some respondents, a major reason why hunting success had improved recently and brought about the drop in game numbers was the greater ease of access to wildlife areas that forestry and oil exploration roads allowed.

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[4] Two of the comments were from farmers in the Fort Vermilion area, 2 more were from High Level and La Crete. There were 2 from Valleyview and 2 more from Little Smoky and Crooked Creek. Two more were from the High Prairie area.

(c) Problem/Nuisance Wildlife

In exact reverse of the big game issue, where not enough of the right kind of animals are present, wildlife becomes a problem when too many of the wrong kind of animals have an impact on man's activities. This issue drew 25 comments. Problems with wildlife come in three classes:

1. Livestock loss to predators. Greater compensation or predator control programs wanted (10 comments).
2. Crop damage by waterfowl or large ungulates. Control program for ducks, geese, elk wanted (7 comments).
3. Disrupted drainage due to beaver dams. Beaver to be removed/controlled (5 comments).

A general sentiment expressed by farmers on problem/nuisance wildlife was for Fish and Wildlife officers to be more attentive to farmers' wishes, and be less influenced by what ecologists might think. For as one farmer whimsically suggested, if animal lovers among the public want wildlife to have a free run, they should get the government to pay farmers to grow feed for wildlife. As it is, farmers themselves are wintering elk for nothing.

(d) Game Farms/Trapping/Guiding

There was little interest expressed in game farming (5 comments). As it is at present an untried scheme, farmers seem uncertain on how it could be operated, and needed management guidelines and advice on how to set it up. Some thought Indian Reserves were promising locations to try it out. The other 7 comments were for better supervision of trapping, that traplines be regularly checked and cleaned out and for stricter enforcement of regulations against late trapping. The need for closer control also applied to guiding outfits.

3.1.4.2 The Forestry Resource

There were 58 comments regarding this issue. This equals 23% of all the comments (247) received from question 34.

A relatively small response of only 58 comments were recorded on this issue, of which 31 dealt with various practical forestry management issues. The balance of the comments (27) referred more to the overall philosophy of forestry management and were essentially about the scale of operations required in developing the forest resource.

(a) Forestry Management

A number of farmers (11) want to get involved in forestry work, either by getting access to timber on crown land, or by logging the timber off land they clear, instead of it being done by an outside contractor with a special permit. They view the forest resource as a potential secondary source of income. Six farmers had comments on developing and conserving the forests by improving the amount of marketable timber in the region. They suggested that the Forestry Service should find a market for aspen and poplar, and plant other more valuable forest species. Forestry extension services should offer more advice on cutting and planting, and undertake a major project to reclaim muskeg for tree growing. More reforestation was needed throughout the region, and the 90 year cycle for regeneration was thought by some to be over-optimistic.

Five farmers commented that Provincial forestry agencies should have a wider role in developing the region's road and drainage infrastructure, and held the Forest Service in high regard. Others were less impressed, and observed that those directly employed in the forest industry, actually utilizing the resource, were fewer in number than those employed by the government in the Forestry Service, managing the forests. When forestry impinges directly on agricultural operations, there was further controversy. On the subject of burning permits, three farmers thought inspections to obtain burn permits were unnecessary and more free-burn areas should be permitted. On the other hand, three farmers wanted more supervision and control of farmer-set burns.

(b) Forest Leases - Extracting Timber - Sawmills, Processing and Marketing Lumber

The 27 comments dealing with these topics centred on the need for small operators to have a share of the forest resource, which was believed to be in the hands of the "big outfits", Canfor and Procter and Gamble. The argument for small-scale operations was that small forestry companies had lower costs and were more economical and efficient, had less impact on the environment, and were locally-based. The present set-up, in the view of these responents, perpetuated the domination of the large organizations. These farmers did not elaborate on whether small operators have the management skills and capital resources to undertake collectively the same level of operations, which the major forest companies are capable of carrying out.

3.1.4.3 The Recreation Resource

There were 34 comments regarding this issue. This equals 14% of all the comments (247) received from question 34.

In question 34, the topic of recreation was not explicitly specified as a resource category. Recreation had been included earlier in questions 31 and 32 in the farmer's questionnaire. This previous reference to recreation, together with the view among residents that recreation adds a life-enriching quality to living in Northwestern Alberta, probably explains the 34 comments it received.

Water-based recreation is the most popular type among local residents, with an orientation to the region's lakes to take part in camping and fishing activities. In keeping with this type of recreation demand, was the expressed need for better access roads to lakes and facility development at lake settings, to upgrade camping, boating and fishing amenities.[5] It was suggested that fish-stocking the lakes would further enhance the recreation resource.

3.1.4.4 Resource Management and Competing Uses Between Resource Sectors

There were 62 comments regarding this issue. This equals 25% of all the comments (247) received from question 34.

The final 62 comments recorded in this section were not addressed to specific resource categories, but rather to the competing and conflicting nature of resource development and use.

(a) Fish and Wildlife Land Use Controls

The most commonly mentioned example of competing resource use has arisen from the encroachment of agricultural resource use into formerly bush or wilderness natural areas. A substantial number of comments (24) were made about the land use controls placed on areas by the Provincial Fish and Wildlife authorities. These restrictions apply to watercourse environments and other significant wildlife habitats and routeways. The response to this issue was deadlocked (12-12), with one side feeling that the power of Fish and Wildlife was too great on land use control, and the other group stating that these buffer zones and reserves must be maintained to protect wildlife.

(b) Optimal Resource Management of Competing and Conflicting Resource Sectors

These 31 comments were farmers' contributions to the ongoing debate on resource development, insofar as resource management consists of establishing sets of priorities between different resource sectors. Resource management is a contentious issue precisely because of the different values people place on resources. In the eyes of some farmers, agriculture plays the primary role in developing the region and has first claim on the land, so agriculture should be developed to the maximum extent, leaving only the residual for other sectors. Others take an optimizing approach, and argue land use should be guided by the suitability/capability of the land. They seem, implicitly at least, to recognize the operation of the law of diminishing returns on continued agricultural expansion.

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[5] Eight of the comments were from farmers in the High Level area. There was 1 from La Crete and 1 from Buffalo Head Prairie. Two comments were from farmers in Keg River, and 1 from Manning. Two were Valleyview area farmers as well as 1 each from Sunset House and Fox Creek.

Most agree that no system of management is perfect, and accept the multiple use principle currently practiced, even at the expense of some interdepartmental conflicts. Farmers would like others to appreciate better that many of the compromises entailed by multiple use management become an added cost borne largely by the individual farmer.

3.1.4.5 Summary - Question 34

The results of the content analysis for question 34 in the survey point out the following as significant resource management issues for the region's farmers:

1. The Wildlife Resource
   - in the opinion of some farmers, wildlife was seriously threatened by excessive hunting pressure
   - wildlife was also considered a nuisance, which interfered with farming activities
2. The Forestry Resource
   - some thought better use could be made of the forestry resource, and smaller operations should have a greater opportunity to participate in the forestry sector
3. Outdoor Recreation
   - some wanted better access to the region's lakes in conjunction with campground development and improved fishing opportunities at lake sites

4. Resource Management

- farmers made a surprising number of comments on this issue, specifically:
    - o the demands of other resource sectors often conflict with agricultural needs
    - o farmers pay a price for the compromises made when resource uses conflict

3.1.5 Conclusions of the Content Analysis

3.1.5.1 The Effectiveness of the Content Analysis Method in Characterizing the Views of Farmers in Northwestern Alberta

The content analysis embodies a fundamental precept of social survey research in that, although the units of study were individual comments, the regularities that were observed permit some general statements to be made about the region's farmers as a whole.

Standing on their own, the comments merely reflect the personal views, biases, opinions, perceptions and feelings of individual farmers. Listed, sorted, classified, analyzed and interpreted by content analysis they now represent the general mood of farmers in the region. There is ample evidence to legitimately claim that the content analysis is based on comments which are not anomalous, but are part of the mainstream of farmers' views on agricultural development. The volume of response is an assurance of the representativeness of the findings. The ease with which the issues could be classified and the consistency of the responses, both in their distribution and the repeated pattern, vouch for the validity and reliability of the method. Consequently, a high degree of confidence can be placed in the findings of the content analysis.

3.1.5.2 Summary of the Findings of the Content Analysis

The Survey was obviously successful in obtaining responses from the farming community regarding a wide range of matters connected with opening up new land for agriculture. Naturally, it could be expected that farmers would have many comments to make on this topic, since it is a subject they know a great deal about, and is hardly an abstract concept, since their livelihood depends on it. To summarize the comments:

1. The primary concern for farmers is land for agriculture, in terms of the cost of raw land, the costs of developing it and a growing scarcity of agricultural land.
2. The second major issue evolves dealing with government, and mainly relates to the land disposition process, particularly the time taken and the selection procedures.
3. The third area of concern relates the whole question of resource development. Farmers want agriculture to be accorded greater prominence in the resources debate, and the present scale of operations favoured in resource development means small operators like farmers are effectively left out.

More fundamentally, the content analysis sheds light on farmers' sometimes conflicting goals for agriculture. There is a general desire for agricultural expansion, but the ever-increasing cost of purchasing and developing new land conflicts with their need to control costs. They want increased agricultural output, but are very conscious of the current depressed state of farm product prices and the less than adequate agricultural infrastructure in the region. Consequently, the risk of failure from expansion has resulted in an increasing reluctance to increase investment in agriculture. Instead of agriculture leading the way to regional growth, it may be entering a period of stagnation. The message coming from farmers is that agricultural development will not materialize solely by the efforts of farmers themselves.

Such feelings underlie the whole question of dealing with the government. The government looms large in the minds of farmers, because resources and untitled land are part of the public domain, and are administered by government departments. On the other hand, the agents of development are individual farmers and private companies and this has created tension between people and government. Both sides want orderly development -

nobody wants to see a scramble for land - but farmers seem to feel that they pay the price of government delays, and when the government does not get it right, farmers have to find solutions - put in ditching and access roads, and make the best out of unsuitable conditions. The Alberta Forest Service has a better image in terms of management expertise and technical proficiency. Most farmers believe that there is great potential for growth in the region based on its resource endowment, and are vitally interested in improving the partnership of government and private interests.

3.1.5.3 Reconciling the Contradictions in the Comments

As the content analysis showed, rarely was there a consensus on a given issue. Farming is uneconomic, but agricultural expansion is desirable. The Green Area should be opened up for agriculture, yet there should be a balance between different resource sectors. Many of these apparent contradictions can be rationalized by thinking of them in terms of a framework made up of two time-frames and two sets of beliefs about resources. Farm economics need to be considered in relation to a short-term and long-term time-frame. Agriculture is a poor investment in the short-term because of the high initial costs of purchasing and developing land. Even worse, it is being managed as a short-term investment, which places a nearly unbearable financial burden on farmers developing new land.

If agriculture is to fulfill a leading role in regional development, it will have to be treated as a long-term investment. The lack of enthusiasm for direct government financial support in the comments indicates that direct subsidies are not wanted. Preference was shown for government assistance to agriculture by shouldering more of the task of developing land, of upgrading the agricultural infrastructure, and leaving farmers to concentrate on farming. The return on this public investment is through the greater wealth generated in the region, and throughout the Province.

Many of the disagreements about resource development found in the content analysis arise from fundamentally different beliefs about resources. Some look forward to unlimited expansion of resource use, a relic of the frontier development ethic, which seeks to transform the natural environment into a man-centred, man-dominated world. Others have a more "limited-world" perspective, and are willing to accept limits on man's activities, and advocate managing resources on a sustained yield basis. The theme of scale of operations in resource development is not just an example of the self-interest of small-scale operators, but also reflects a view that large-scale operations are more detrimental and disruptive to the environment and other resource users. The results of the content analysis suggest that this view of man's relationship to his environment is quite prevalent in the region and that there is general acceptance that in the long-run, resource development in Northwestern Alberta entails adjusting to the local environment.

SECTION 3.2

VIEWS ON AGRICULTURAL LAND EXPANSION BY FARM LEADERS

SECTION 3.2
VIEWS ON AGRICULTURAL LAND EXPANSION BY FARM LEADERS

INTRODUCTION

The information contained in this section is generally based on personal interviews with representatives of various agriculture-related organizations in Northwestern Alberta, July-September 1983.[1]

What is the present status of the agricultural industry in Northwestern Alberta? What are the principal problems and future prospects for agriculture in the region? And what about the demand for agricultural land in the region? To provide an agricultural perspective on these issues, various farm representatives were interviewed.

3.2.1 GENERAL TRENDS

Representatives of various agriculture-related organizations presently mirror many of the same concerns that farmers themselves emphasize. Similarly, their remarks are generally tempered by the relatively depressed state of the entire agricultural industry in mid-1983: relatively low product prices, rising costs, restrictive grain quotas, a relatively poor crop (quality or quantity) in 1982, and other factors.

In any event, there is a general concensus amongst people in the agricultural industry regarding the future structure of a viable commercial agricultural industry in Northwestern Alberta. The two key elements are:

1. Continued intensification, accompanied by further growth in the size of existing (family) farm units through more farm consolidation. In this context, greater farm intensification would

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[1] The reader is referred to Appendix A.3.2.1 for a statistical profile of the agricultural economy of Northwestern Alberta, and Appendix A.3.2.2 for a list of organizations and persons interviewed.

take two basic forms: more clearing and breaking on existing private lands, and increased use of farm inputs such as fertilizer and chemicals. This intensification process would generally be a capital intensive (versus land, labour, or management) form of development which would track technological trends in other parts of the country. One implication of this scenario is that capital requirements can be expected to continue to climb. This will put yet more pressure on off-farm income sources to facilitate entry into the agricultural industry.

2. Continued improvements in farm management practices, particularly with respect to soil management. Most agriculturalists emphasize that the physical conditions which generally prevail in the Northwest (which are sometimes very unforgiving) virtually dictate that these improvements continue.

This commercial agricultural development scenario for Northwestern Alberta in short, would not be very unique to Northwestern Alberta. It would largely follow agricultural trends elsewhere in the country.

In addition, however, agriculturalists in Northwestern Alberta seem to give more emphasis to the following: (1) the imperative of socially desirable long-term resource management, (2) the need to determine how the agricultural industry in the Northwest can further overcome its inherent disadvantages and further exploit some of its inherent advantages, and (3) the historical role of government in this on-going development process.

Agriculturalists in Northwestern Alberta are particularly aware of the need for proper long-term resource management. Good farm management practices are considered absolutely essential.

The physical and climatic characteristics are sometimes unforgiving. New farmers may not have time to learn. Management errors are costly, frequently irreversible and sometimes financially fatal. The timing of farming operations in the Northwest is especially critical. This, according to agriculturalists in the region, strongly argues against spontaneous ad hoc "agricultural" development. One individual even suggested that an Alaska-inspired Conservation Caveat should be applied to crown lands, irrespective of a prospective "farmer's" apparent qualifications. In another interview, imperatives for managerial upgrading were suggested, e.g. mandatory pre-farm training and/or mandatory A.D.C.-type counselling.

Agriculturalists in the Northwest are also fully aware of their geographic isolation and (in most areas) their relative susceptability to climatic variability. Their distance from major markets and related infrastructure is cited as a major bottleneck to an expanding grain industry and the major reason for a gradual contraction in the livestock industry.[1] Marketing opportunities are limited.

Climatic variability (although perhaps over-emphasized by the press to give the Peace Country a "bad name") is also a recognized handicap in most of the "newer" areas of the Northwest. But many of the potential means to effectively counteract (or even exploit) this uncertainty are not actively pursued because of existing structural or farm financial constraints. Some examples of these are:

- Diversification into livestock is discouraged by the frequent need to secure additional capital for farm development through off-farm employment. This is particularly true of beginning farmers.
- Crop insurance is not widely utilized because of its land rating system and premium requirements.
- Canola (rapeseed) is grown extensively because of its good cash-flow characteristics, despite its long-term soil management implications.

And, further, most agriculturalists doubt that these prevailing characteristics are likely to change very radically in the future. In any event, major changes would probably only arise via various government initiatives e.g. the Double 80 Crow Formula would probably rekindle an interest in additional livestock production.[2]

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[1] But this is not true of all sub-regions in the Northwest. One long-time resident said that he couldn't even remember when the older (50-60 year) well-established Grimshaw-Fairview-Rycroft region didn't get a fair to excellent crop.

[2] Livestock production is at a crossroads. On the one hand, young farmers now know very little about livestock production. But on the other hand, if off-farm job opportunities contract (and these are considered critical), the marketing of grain becomes increasingly difficult, and livestock markets can be found, livestock production could increase.

3.2.2 KEY ISSUES

Representatives note numerous issues of vital concern to agriculture in the Northwest. In general, however, four major issues emerge:

1. The multiple versus single objective issue. Farm representatives generally view farming as a business. Their (almost exclusive) focus is on the requirements for long-term viable commercial farm development in the Northwest. Other objectives (e.g. a homestead for a home of your own; a place to live) generally receive little or no sympathy in the agricultural community.

2. Specific on-farm requirements for commercial agriculture (e.g. capital, decent land, good management, etc.) The need for these inputs of sufficient quantities, is considered essential. In this context, the point that farming is a very exacting business is again emphasized.

3. Natural resource development (i.e. further land development) Almost unanimously, farm representatives strongly endorse very selective further expansion by "real" (preferably local) farmers into surrounding virgin areas with considerable agricultural potential. This carefully planned expansion would give almost exclusive priority to the development of viable commercial family farm units which are privately owned, capital intensive, characterized by a high level of resource management, and not highly dependent on off-farm income sources. Moreover, very selective block development is recommended because incremental "creep" development is generally considered inefficient (i.e. socially and economically costly), not conducive to good long-term resource management, and seemingly subject to more administrative adhocery.[1]

4. Government support and leadership. This issue generally focuses on how to resolve varying community perspectives (particularly regarding the above) and precisely how to stimulate various growth initiatives in the Northwest. How to effectively reduce their relative social-economic and political "isolation" is also emphasized, irrespective of what type of future growth in the Northwest is envisioned.

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[1] Aside from the relatively high cost of public infrastructure (e.g. roads, power, schools, etc.), this form of development also discourages private industry from servicing an area (e.g. truckers, co-ops, machinery dealers, grain and livestock buyers, etc.). It also makes it more difficult to get off-farm work, thus discouraging the presence of "hobby" farmers.

3.2.3 FUTURE PROSPECTS

Farm leaders, however, generally exhibit a tremendous amount of optimism (and accompanying determination) about the future development prospects for Northwestern Alberta, particularly agriculture in the region. This is a pervasive attitude throughout the agricultural community.

They recognize that the region has a relatively rich resource base. Natural resources abound. It is a vast, still relatively under-utilized region of the province. It cries out for people who still have the "frontier spirit" in whatever area of economic activity they are employed.

At the same time, Northwestern Alberta is successfully attracting and developing a very special people: people whom they generally regard as industrious, resourceful and proud, and perhaps most importantly, people with a dream, looking for their "place in the sun" without fear of failure. As applied to agriculture, this is the fundamental reason farm representatives generally feel that even the poorest, most remote farmers will eventually succeed. If not these farmers, then their children or their childrens' children.

Virtually every farm leader interviewed in Northwestern Alberta emphasized this apparent regional uniqueness and, thus, the importance of keeping these hopes and dreams alive.

And, finally, farm leaders often note that it is easy to over-emphasize the problems inherent in regional growth and development in the latter half of the 20th Century. Generally, these are just considered "growing pains" that should be expected. The role of government, as in other regions, should simply be utilized in the most effective way possible to allow for further regional growth and development. Everyone, ultimately, must "pull together" to encourage each and every individual in the Northwest to fulfill his/her own destiny.

Agricultural representatives, in general, are very, very confident that the many hopes and dreams of a dynamic and ever-growing region will ultimately be fulfilled.

3.2.4 SUMMARY

The principal points are these:

1. Many of the attitudes and expectations of farm leaders (who are generally leading farmers as well) in Northwestern Alberta mirror our findings in other sections of this report, particularly our tabulation of comments contained in the Farmer Questionnaires in Section 3.1 preceding.

2. Not unexpectedly, farm leaders generally adhere to an "agrarian development perspective" which seems to be based on two central theses: (a) agricultural expansion should serve as the basic growth stimulus to facilitate further socio-economic development of Northwestern Alberta, and (b) this agricultural expansion should be spearheaded by commercial farm development, which would generally be subject to the vicissitudes of the marketplace.

3. At the same time, there appears to be a relatively high level of awareness and sensitivity regarding the careful management of the natural resource base. This prompts farm leaders to generally endorse a relatively cautious agricultural land expansion scenario, in conjunction with the need for a very high level of farm management expertise.

4. Good farm management techniques are unique to the region in question. On-the-job training and experience is mandatory to both: (a) develop a viable commercial farm in the region, and (b) adequately protect the local environment. Thus, according to most farm leaders in Northwestern Alberta, any future agricultural land expansion in the region should be spearheaded by "progressive" farmers who are already farming in the region.

5. And finally, there is generally a quiet confidence that commercial agriculture in the region will continue to grow, become increasingly strong, and eventually prosper throughout the entire farming area of the Northwest. According to most farm leaders, most of the non-institutional prerequisites for such a development are already in place. But, in particular, much of this confidence seems to be based on successes of the past: commercial farmers and other local residents who still have a dream and who continue to succeed, despite numerous hardships, industrious people who really know the region and have not only survived but prospered.

Woods Gordon

SECTION 3.3

CROWN LAND DISPOSITION: THE AFTER POSTING PROCESS FOR AGRICULTURAL PURPOSES

SECTION 3.3
CROWN LAND DISPOSITION: THE AFTER-POSTING PROCESS FOR AGRICULTURAL PURPOSES[1]

INTRODUCTION

The opening of lands for agricultural development in Alberta follows a set procedure. This procedure includes (a) the assessment of land for agricultural purposes, (b) the posting of lands deemed suitable for agricultural purposes, and (c) the allocation of lands to qualified individuals (the after-posting process). Authority for this procedure, called the disposition of lands, is found in Section 12 of the Public Lands Act which states:

> 'The Minister may by order classify public lands and declare the use for which he considers them to be adaptable'.

This part of the Report only addresses the after-posting process.[2]

3.3.1 REVIEW PROCESS

The review of the after-posting process included (a) a review of the relevant literature, (b) a review of relevant government reports, (c) an interview program, (d) content analysis of farmers' responses through an extensive mailed questionnaire survey, and (e) individual responses to questions regarding the land disposition process contained in the questionnaire. The interview program was relied on for the majority of data presented in this section of the Report.

A listing of the interviewees is presented in Appendix A.3.3.2. The individuals interviewed included Provincial government staff (both regional and head office), members of two separate Agricultural Development Committees, applicants and three individuals who submitted briefs to the NADC regarding the disposition process.

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1. For an historical overview of government policy and agricultural settlement in the Peace River Region see Appendix A.3.3.1 of this Section of the Report.

2. The Terms of Reference for the Study specifically stated that only the after-posting process was to be reviewed.

TABLE 3.3.1

CROWN LAND POSTED AND DISPOSED OF IN ALBERTA AND THE STUDY AREA

(1978-1982)

YEAR	TOTAL PROVINCE		PEACE REGION[1]			
			TOTAL		NEW LANDS	
	Number of Quarter Sections	Acreage	Number of Quarter Sections	Acreage	Number of Quarter Sections	Acreage
1978	2,214	302,679	1,211	173,834	157	25,120
1979	1,576	212,676	928	128,415	81	12,960
1980	1,846	247,650	1,146	158,603	230	38,720
1981	1,905	259,876	1,106	144,322	66	10,164
1982	1,999	161,408	514	68,496	37	4,889
TOTAL	9,540	881,610	4,905	673,670	541	91,853

1. Included in Total are new lands posted for sale or lease with option to buy.

NOTE:

a) In 1982, of the total acreage figures for the Province, 60% was for grazing and 40% for tillage (35% sale and 5% lease).

b) In 1982, of the total acreage figures for the Peace Region, 42% was for grazing and 58% for tillage (52% sale and 6% lease).

SOURCE: Public Lands Division, Alberta Energy & Natural Resources, 1983

The interview guidelines are shown in Appendix A.3.3.3. The intent of the guidelines was to:

- clarify the various aspects of the after-posting process
- collect data regarding the strengths and weaknesses of the present system

3.3.2 CROWN LAND DISPOSITION - AMOUNT AND LOCATION

From 1978-1981, there were 4,391 quarters (605,174 acres) posted and/or disposed of in the Peace River Region of Alberta. As shown on Table 3.3.1 opposite, the amount of land posted/disposed of has remained fairly constant except for 1979. From 1978 to 1981, the land posted/disposed of in the Peace Region represents almost 60% of all the land posted/disposed of in the Province.

3.3.3 THE PRESENT AFTER-POSTING PROCESS

Once the decision has been made to open land for agricultural purposes, the after-posting process is followed. It is currently composed of nine steps.

STEP 1 The land to be disposed is posted. The posting notice is listed in the Provincial Government's public lands offices, available for anyone to see. Additionally, all land owners within a two mile radius of the parcel of land and all names of past land applicants that are on the files of the Public Lands Branch of the Department of Energy and Natural Resources are informed (by mail) of the land availability.

STEP II Once the land has been posted, individuals are normally given 30 days in which to apply for the land. A copy of the application form is presented in Appendix A.3.3.4. Applications are accepted at all public lands offices, by fieldmen, and by mail.
The 30 days posting time allows for applicants to get a form, complete it and mail it back. For those applications sent to Edmonton, as opposed to Regional Offices, several days are needed to transfer the applications to the Region where they are compiled and reviewed.

STEP III On the expiration of the 30 day application period, the public lands officer for the area (fieldmen), interviews each applicant.

For those applicants located within the area, personal interviews are held. The Department's policy calls for interviews at the applicant's farm, if possible, so that the fieldman is able to generally assess the applicant's ability to clear the land for agriculture. At times the interview is at the public lands office when the applicant is not a farmer or the fieldman is already aware of his ability. For those applicants located outside the area, the interview is by telephone unless the applicant takes the time and expends the funds to go to the public lands office in the area that the parcel of land is located.

Although the Department's policy is that every applicant is to be interviewed, for those applicants that would clearly not receive the land, interviews are often not conducted.

There are advantages and disadvantages associated with face-to-face, on-farm interviews as compared with telephone interviews. Those individuals who have a personal interview are likely (a) to be better 'received' in terms of responding to questions, and (b) to have a better opportunity to explain situations, contexts and other matters.

STEP IV The fieldman then prepares a report regarding his evaluation of the applicants. The report recommends which applicant should get the land. No explicit or consistently applied criteria are used in the evaluation of each applicant and preparation of the fieldman's report. The application form itself (see Appendix A.3.3.4), contains a good deal of information, and provides the basic quantitative data used in the evaluation of the applicant.

STEP V The fieldman's report is then forwarded to the Edmonton offices of the Public Lands Disposition Branch, to either the Farmland Disposition or Grazing Disposition Sections. The report is reviewed by one of these Sections and the recommendation is either accepted or rejected.

If the recommendation is rejected, communication is conducted between the Farmland Dispositions Section and the appropriate field office. Resolution of the conflict is sought. If the disagreement is not mutually resolved, the final decision rests with the head office staff. If the recommendation is concurred with (or the disagreement resolved), an 'Interim Decision' is made and all applicants are informed (by letter) as to who received the land. The letter sent to unsuccessful applicants states that the successful applicant was more appropriate - specific reasons regarding (a) the successful applicant's credentials, and (b) the successful applicant's lack of qualifications are not given.

STEP VI Each unsuccessful applicant is given 30 days to appeal the 'Interim Decision'. If there are no appeals the Interim Decision is confirmed and the land is leased to the successful applicant. If there are appeals (which usually occurs) the Agricultural Development Committee is called upon.

STEP VII The purpose of the Agricultural Development Committee (A.D.C.) is to review the recommended (Interim Decision) allocation of posted agricultural land when the Interim Decision is appealed. Each appellant, as well as the individual who has been recommended in the Interim Decision, is interviewed.

The A.D.C. is composed of local people consisting of (a) two or three farmer members, (b) a business community representative (e.g. local bank loans officer), and (c) local government employees from the Federal, Provincial and municipal levels.

A.D.C.'s have no formal written Terms of Reference. Each committee is constituted to represent the interests and concerns of the local community and their actions are expected to reflect these.

The A.D.C. is established by Order-in-Council. Each member selected is recommended by the local M.L.A. and appointed by the Minister of Energy & Natural Resources. A.D.C.'s are advisory to the Public Lands Branch. There is no specified rotation period for A.D.C. members. In the study area there are five A.D.C.'s:

- Fort Vermillion/High Level
- Manning
- Peace River
- Valleyview
- High Prairie

The process followed by the A.D.C. is to contact all appellants and the recommended individual to arrange for an interview. This can be time-consuming as it is often difficult to ensure that the appellants are available for the interview when the A.D.C. meets. The A.D.C. meets once every month (emergency meetings can be called).

The A.D.C. interviews each appellant according to rather flexible criteria that recognizes the uniqueness of the individual and the parcel of land in question. However, the criteria, which can be characterized as intuitive, judgemental and based on the knowledge of the A.D.C. members as farmers and members of the community, generally include an assessment of:

- the individual's track record and management ability

- the individual's plan for the land and the practicality of this plan (including costs)
- the stability of the individual as a member of the farming community
- the individual's intent and commitment to opening the land for agriculture
- the distance the land is from other land that the individual may hold and farm
- the individual's age (i.e. there is a definite preference for younger farmers - e.g. 30-35 years of age)

The criteria are applied in an attempt to assess the relative merits of each individual. There is however, no consistent roster of questions used.

STEP VIII The A.D.C. then either agrees with the Interim Decision or disagrees with it. If they agree, the Interim Decision is confirmed and the land is leased to the individual recommended.
If the A.D.C. disagrees, they send their reasons to the Lands Disposition Branch in Edmonton. Also the District Agriculturist, who is the Secretary for the A.D.C., sends a supplementary report to Edmonton. If the A.D.C. decision is agreed to by the Lands Disposition Branch, the Interim Decision is turned over and the land leased to the successful individual. If the A.D.C. decision is not agreed with, the individual felt most appropriate by the Lands Disposition Branch is confirmed. The Lands Disposition Branch in Edmonton has the final decision. There is only the one appeal possible, which is why the A.D.C. also interviews the individual recommended in the Interim Decision.

STEP IX Once the decision is confirmed the lease for the land is then signed and the land transferred to the successful applicant.

At the outset, to interpret any procedure similar to the after-posting activities in the lands disposition process, it is essential that the objective of the process be clearly articulated. Although we were not able to identify written objectives of the program, it would appear that the priority system established by Energy & Natural Resources indicates the intent or the objectives of the program. The priority criteria are to ensure land is allocated:

> "To local people already engaged in farming requiring additional lands to make up an economic unit."

> "For the establishment of new farm units, firstly to local people and secondly, to non-local people who can demonstrate that they have the necessary resources and expertise to have a reasonable assurance of success and who intend to become primarily engaged in farming."

These criteria indicate that the objective of the program is to increase the amount of agricultural land in such a way that those farming the land are financially successful.

3.3.4 INTERPRETATION

Given the objective, the after-posting structure in the land disposition process appears sound. There seems to be adequate opportunity for individuals to apply for land postings and to appeal decisions. We do not recommend any changes to the basic structure now used.

However, there do appear to be three areas of concern that should be addressed, which we believe, once resolved, would improve the overall function of the after-posting process. These three areas are:

- the elapsed time required from the moment the land is posted to when the individual receives the land
- consistency of approach to applicants and appellants among A.D.C. districts and among the applicants and appellants within one A.D.C. district
- the perceived fairness of the allocation process

Each of these will be dealt with in-turn.

3.3.5 SURVEY RESULTS

Key questions were asked of farmers that related to the land disposition process (see overleaf). In one of these questions farmers were asked to indicate their level of satisfaction with the after-posting process as related to the acquisition of crown land. The results of this question were:

QUESTION ASKED OF THE FARMER

Question 18

18. If you have had experience in acquiring crown land, please indicate your level of satisfaction with the following items. (Please check one box only in each row.)

If no experience, please go to Question 19. ———

	YOUR LEVEL OF SATISFACTION		
	High	Medium	Low
The Process (e.g. the way notice was given, the time taken, the appeal process, etc.)			
Factors for Approval of the Applications (e.g. must be a local farmer, must demonstrate financial security, must demonstrate farming ability, etc.)			
Cost of purchasing land			
Amount of land			
Location of land			
Other (please specify) ____________________			

Source: Woods Gordon, Farmers Survey, 1983

DEGREE OF SATISFACTION	TOTAL	ZONE 1	ZONE 2	ZONE 3	ZONE 4
High Satisfaction	18.9	14.6	9.6	19.6	23.4
Medium Satisfaction	45.8	41.7	49.4	49.0	44.5
Low Satisfaction	35.3	43.8	41.0	31.4	32.1

As reported, only 18.9% stated they were highly satisfied, 45.8% were only moderately satisfied, and 35% were not satisfied. On a geographical basis, Zone 1 (High Level/Fort Vermilion area) had the greatest degree of low satisfaction, and Zone 2 (La Crete area) had the lowest degree of high satisfaction. This response clearly indicates that there is a significant degree of concern on the part of the farmers responding regarding the process.

3.3.5.1 Elapsed Time (Calendar Days)

The average time required from the moment when the land is posted to the time it is leased, ranges from 273.8 days for grazing leases to 363.8 days for farmland leases. Table 3.3.2 overleaf indicates the length of time taken for each activity.

In the Farmers Survey, the issue of elapsed time was also raised. The Survey allowed the respondent to respond to several open-ended questions regarding agricultural issues in the Study Area. In the first set of questions there were a total of 291 comments of which 59 (20%) dealt with elapsed time. Some commented that a two-year delay was usual while others said it can take up to four years. To the farmer this meant a long period of uncertainty which often proved to be costly.[1] Farmers

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[1] For example, one respondent indicated that the cost of the land went from $12 per acre when applying to $28 per acre on approval (133% increase). Another respondent cited a similar example; from $10 per acre to $33 per acre on approval (83%).

TABLE 3.3.2
OPERATIONS AND TIMINGS FOR APPLICATIONS FROM POSTING TO AWARDING DISPOSITION

UNITS INVOLVED	GRAZING	FARMLAND	OPERATIONS	MAJOR ACTIVITIES	TYPE OF APPLICANT CONTRACT
	Avg. Number of Days	Avg. Number of Days	Posting 30 Days		
o District Field Office			Receive Application HQ	o Same as Figure	
o Surface Township Records o Surface File Room			Record and Distribute	o Same as Figure	
o Farmland and Grazing Dispositions Section	21.9	34.9	Screen	o Check Application for Complete/Land Standing o Acknowledge o Forward to District Field Office	o Acknowledge receipt o Advised Cancellation
o District Field Office	114.7	118.2	Evaluate Applicants	o Interview Applicants o Prepare Recommendations	
o Farmland and Grazing Dispositions Section	27.0	11.7	Interim Decision	o Review Recommendations o Finalize Interim Disposition Award o Advise Applicants	o Advised Interim Disposition Award Decision
o Farmland and Grazing Dispositions Section	30.7	30.4	Single App. 7 No	o Forward Appeal Information to Field o Acknowledge Receipt	o Receipt of Appeal of Acknowledgement
o District Field Office			Receive Appeal No (30 days) Yes	o Set up Appeal Hearing Date	o Advised of Appeal Hearing Date
o ADC, District Agrologist	34.0	44.7	Appeal Hearing	o Interview Applicants o Prepare Recommendations on Dispositions Award	o Appellant Applicants Heard
o Administrative Support Section	11.5	22.3	Minutes Received		
o Farmland and Grazing Dispositions Section	44.6	66.6	5 Final Decision 6 4	o Review Recommendations o Resolve Conflicts o Finalize Disposition Award	
o Farmland and Grazing Dispositions Section AP 1		28.3	1 Approval Letter 3 2 Letter of Authority 4	o Advise Applicants of Final Disposition Award o Cancel Unsuccessful Applications o Determine Sale Price or Rental Fee	o Advised Final Disposition Award Decision o Advised Cancellation o Advised Conditions and Sale or Rental Price
LOA 2	11.8				
AP 3		45.2			
LOA 4	59.7				
AP 5		4.9			
LOA 6	111.4				
o Documentation	36.9	22.5	Prepare Legal Description	o Prepare Legal Descriptions	
o Farmland and Grazing Disposition Section	26.4	36.3	Contract Prepared	o Prepare Contract	o Receive Contract for Signature
o Farmland and Grazing Disposition Section	N/A	47.9	Contract Executed	o Execute Contract o Prepare Dispositions Form for Department Records	o Receive Copy of Executed Contract
TOTAL	273.8	363.8			

SOURCE: D.D.C. Consulting Services Ltd.

WOODS GORDON NOTE: The above is based on a sample of about 40 of each type of application assessed by the consultant.

considered these delays unnecessary and tended to attribute the length of time taken to the inefficiency of civil servants.

The second open-ended question in the Survey also confirmed this perception. Of the 436 comments, 49 (9%) dealt with concerns regarding elapsed time.

From our assessment of the after posting process, the primary areas where a large amount of time is consumed and where savings appear possible, are steps 3, 7 and 8. The major reason for the delays appears to be related to the need for the public lands officer (step 3) and the A.D.C. (step 7) to interview all applicants (step 3) and all appellants (step 7). Since it is often difficult to reach the individuals for interviews, time is lost. Also, in Step 8, the time it takes the Lands Disposition Branch to make the final decision is very lengthy.

To overcome these problems to a degree, specific procedures are recommended in the 'Recommendation' section of this Report. They include the need for:

- interviews and scheduling of same during the application process
- a time limitation in regard to the interviewing
- a time limitation for the A.D.C. appellant interview
- a written report from the A.D.C. to the Public Lands Division according to preset guidelines, if the A.D.C. disagrees with the Interim Decision

Secondly, it appears that there is no clear decision-making authority, regarding who should receive the Crown Land, in the Public Lands Division (up to and including the position of the Minister of Energy and Natural Resources). When the Interim Report is concurred with by the A.D.C., the decision is usually made at the Public Lands Disposition Branch level. However, when there is a lack of concensus between the administration of Energy and Natural Resources, Public Lands Branch and the A.D.C. the final input into the decision can include the Assistant Deputy Minister, the Deputy Minister and the Minister of Energy and Natural Resources.

The level of decision-making should be clear and consistently applied within Energy and Natural Resources. In order to reduce the average time taken at this stage of the after-posting process, it would appear that the decision-makers should be at the Public Lands Disposition Branch level.

Another step in the process may also permit time to be saved, although the above steps (3, 7 and 8) are the most time-consuming (and therefore likely to yield the greatest time savings). The other step that may yield time savings is Step 5.

3.3.5.2 Consistency of Approach

The second area of concern reported to us dealt with the perception that not all applications or appellants were dealt with in a consistent fashion. This consistency issue was at two levels:

- there seems to be a lack of consistency among the various A.D.C.'s in the study area regarding the manner and criteria used to interview/evaluate the appellants
- there also seems to be a lack of consistency in the manner in which an individual A.D.C. uses the evaluation criteria among the appellants

In the Farmers Survey, responses to the open-ended questions also dealt with this concern. Of the 291 comments received regarding the first set of questions, 37 (13%) dealt with how applications were approved. There was a considerable degree of skepticism about whether the actual decisions made were based on the criteria espoused by the decision-makers. The perception that not all had an equal opportunity was even more pronounced in relation to the workings of the A.D.C. The Committees were not thought to be absolutely impartial, and aroused suspicions of favourtism and inside deals.

Responses to the second open-ended question also confirmed this feeling on behalf of the farmers. Of the 436 comments, 56 (13%) raised this issue as a concern.

Of the 56 comments recorded on this sub-issue, 24 were a statement that somehow farmers' sons, young farmers and young would-be farmers could not readily obtain land in the region and this threatened the long-term growth and stability of their community. The people receiving land were thought in many cases to be undeserving speculators, persons with little experience of farming and hobby farmers rather than genuine local farmers. Eight comments referred to the A.D.C. being influenced by certain parties or being prejudiced against particular individuals.

It was extremely difficult to assess whether this issue was fact or perception. In any event, we believe that perceived issues are just as problematic and require resolution to the same degree as those of a more factual nature. Therefore, any recommendations that are designed to resolve this issue, must address both the factual and/or perceived nature of this issue.

We believe that a significant reason why this is an issue relates directly to the communication that now occurs between the decision makers and the applicants and appellants. At present, other than what the applicant can 'glean' from the application form, he is given no understanding of how his application is to be evaluated. The criteria used by the district public lands officer is not published. Therefore, it is impossible for the applicant to know on what basis he is being evaluated. Similarly, the criteria used by the A.D.C. vis a vis appellants is unpublished.

Additionally, neither the applicant nor appellant are informed as to the overall after-posting process, or the time requirements. Furthermore, other than a rather superficial statement, neither the applicants or the appellants are informed as to the reason why they were unsuccessful. This lack of information sharing is problematic in two regards:

(a) Neither the applicant or appellant is aware of exactly why they were unsuccessful. Therefore, they are not in a position to improve their application or strengthen a weak part of their operation. Clearly it is not fair to withold information from individuals which, if given to the individuals, may improve their opportunities and thereby help guarantee the success of achieving the objective of the program.

(b) There would appear to be a significant lack of accountability in the process when neither the report and decisions of the Public Lands Disposition Branch and the recommendations of the A.D.C. are not available for public (applicant and appellant) scrutiny. When dealing with an issue as sensitive as land dispositions, there is a need not only to be objective, but also to be seen to be so. By informing applicants and appellants of the reasons why they were not recommended, objectivity and accountability would be greatly enhanced.

Based on our belief that these are significant limitations in the existing process, the following lists the recommendations that are detailed in the 'Recommendation' section of this Report.

- there is a need for an information dissemination devise regarding the posting process
- A.D.C. workshops/seminars should be conducted
- the application form should be modified to include additional information
- Terms of Reference for the A.D.C. should be prepared

3.3.5.3 Perceived Fairness of Allocation Process

We were informed that the actual allocation decision is made on the relative merits of the applicants. Therefore, the same applicant who was unsuccessful in seeking to lease one parcel of land may be successful in being allocated another parcel of land, even though his situation may not have changed.[1]

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1. This is one of the critical points to be emphasized in the information mechanism previously discussed.

However, there are instances where, out of the 15 applicants (example only) for a parcel of land, 4 or 5 may be assessed as relatively equal. In other words, there are no significant differences among these 4 or 5 applicants that allows one to be identified as superior (in terms of his or her qualifications to receive the land) than the others. In these instances it is recommended that a draw be conducted. Draws tend to be more acceptable as a fair means of selection. Also, it removes the burden of selection when no real or significant differences exist among the best applicants.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

SECTION 3.4

THE AGRICULTURAL ECONOMY: THE ON-FARM SURVEY

SECTION 3.4

THE AGRICULTURAL ECONOMY - THE ON-FARM SURVEY

INTRODUCTION

The primary data provided immediately following were obtained from a random sample of approximately 10 percent of all farmers in each Study Zone:

Study Zone	No. of Farmers	Sample Size
1	195	18
2	318	30
3	258	26
4	802*	76
TOTAL	1,573	150

*Excludes an additional 121 farmers considered elsewhere in this Report.

The 150 on-farm interviews were conducted in July 1983.[1]

3.4.1 GENERAL PROFILE

Accompanying Table 3.4.1 provides us with a general profile of the farmers surveyed.

The average age of the farm operators interviewed was about 44 years. In Zones 1 and 4, younger operators tended to have higher farm sales than older operators. But in Zones 2 and 4 the converse is true.

The age of all farms averaged 22 years - relatively low. But this ranged from an average of 14 years in the Ft. Vermilion/La Crete area to 28 years in the Manning/Keg River area. In Zones 2 and 4, the gross sales on older farms was substantially higher, on average, than on younger farms.

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1. The interview guidelines used in this on-site survey are contained in Appendix A.3.4.

TABLE 3.4.1

GENERAL PROFILE OF STUDY AREA FARMERS, BY ZONE AND GROSS FARM REVENUE CLASS

Item	Zone 1 (High Level)			Zone 2 (Ft. Vermilion - La Crete)			Zone 3 (Manning)			Zone 4 (Valleyview)			TOTAL STUDY AREA		
	<$10,000	>$10,000	Total[1]	<$10,000	>$10,000	Total[1]	<$10,000	>$10,000	Total[1]	<$10,000	>$10,000	Total[1]	<$10,000	>$10,000	Total[1]
No. of Yrs. at Present Location	16	13	14 (6)	10	14	12 (8)	15	19	18 (15)	11	16	14 (12)	12	16	14 (11)
Age of Farm	21	21	21 (14)	10	17	14 (8)	13	34	20 (18)	19	27	24 (14)	18	25	22 (15)
Age of Operator	54	60	46 (12)	30	46	43 (13)	41	47	46 (11)	44	43	43 (11)	44	44	44 (11)
Typical Land And Use: (incl. leased)															
Cultivated (acres)	273	1100	866 (1003)	320	561	440 (300)	486	1010	883 (942)	284	682	585 (630)	314	810	629 (643)
Wheat (%)	26.3	13.8	18.6	21.2	22.0	21.7	12.2	12.5	12.6	16.8	17.3	17.2	17.6	16.0	16.3
Oats (%)	2.2	2.3	2.3	.3	1.5	1.1	-	.9	.7	1.1	6.2	4.3	.6	2.7	2.3
Barley (%)	33.9	17.6	18.7	6.6	8.6	7.6	5.6	27.1	24.5	16.0	19.2	18.0	13.1	20.1	18.9
Canola (%)	10.2	16.5	16.0	10.3	10.4	10.3	16.1	13.0	13.9	8.2	16.5	10.2	12.6	14.0	13.8
Hay/Forage (%)	7.7	11.0	10.8	8.7	5.7	6.7	6.6	8.4	7.9	25.0	14.4	16.2	24.6	15.8	17.2
Other Crops (%)	2.9	1.8	1.9	11.8	15.5	13.0	20.9	15.2	17.2	22.1	20.7	21.1	9.3	10.3	10.2
Summerfallow (%)	16.8	37.0	33.7	33.6	27.3	29.7	31.6	22.0	23.2	30.3	12.6	12.1	22.6	21.0	21.3
Unimproved (acres)	365	477	432 (402)	277	283	286 (280)	253	424	383 (419)	351	447	411 (604)	320	411	370 (431)
Total Land (acres)	638	1055	1087	807	837	726	750	1443	1266	636	1129	937	634	1221	1007
Land Tenure:															
Owned (%)	64	74	73	81	67	72	77	81	80	81	80	80	81	77	78
Leased (%)	36	26	27	19	33	28	23	19	20	20	20	20	19	23	22
Av. Grain Delivery Distance	33	30	31 (13)	62	64	63 (10)	9	11	11 (7)	38	38	38 (21)	41	36	38 (24)
Av. Livestock Numbers															
Cattle & Calves	26	23	24 (37)	3	10	7 (11)	0	21	17 (33)	6	43	28 (62)	6	30	20 (41)
Hogs	31	5	14 (26)	7	16	12 (20)	1	1	1 (3)	8	10	6 (41)	5	8	7 (33)
Poultry	0	12	6 (16)	53	36	43 (64)	64	30	44 (38)	17	42	38 (116)	31	37	35 (81)
Av. Gross Farm Revenue	8804	52206	38179 (41,050)	6,600	27,000	17,000 (14,604)	6982	67,601	56,161 (80,046)	4,334	42,200	27,455 (28,727)	6,130	67,201	31,062 (62,031)
Av. Off-Farm Income	26,000	6,143	11,700 (13,230)	13,242	7,150	8,836 (8,330)	23,000	14,117	16,064	14,837	10,710	12,000 (13,060)	16,530	10,265	12,636

[1] Standard Deviation indicated in brackets.

All farmers interviewed averaged 14 years at their present location. In Zone 3, this average was slightly higher - about 18 years. In Zones 2 and 3, farm sales generally tend to be higher for farmers who have been at their present location longer.

About two-thirds of the land (owned and leased) on surveyed farms is cultivated. This percent is slightly lower in Zones 2 and 4; slightly higher in Zone 3. But this is not highly correlated with farm sales levels.

Looking solely at the cultivated acreage, there was summer fallow on about 21 percent of all cultivated land. But this percentage is rather different between Zones:

Zone 1	34%
2	30%
3	23%
4	12%

Further north (Zones 1 and 2), there tends to be more summer fallow and less fertilizer use (see following). Similarly, Zones 1 and 3 tend to grow the most canola (rapeseed) and the least forage. Wheat and barley are the other major crops:

	Wheat	Barley	Canola	Hay/Forage
Zone 1	16%	20%	16%	11%
2	22	8	19	7
3	13	25	14	8
4	17	19	10	16

These cropping patterns are rather similar to many areas in Central Alberta.

On average, over three-quarters of the land operated by the farmers surveyed was owned; about 22% was leased. Leasing is of slightly more importance in Zones 1 and 2. But, again, these tenure characteristics are not highly correlated with farm sales levels.

TABLE 3.4.2

ASSET-DEBT PROFILE OF STUDY AREA FARMERS, BY ZONE AND GROSS FARM REVENUE CLASS

Item	Zone 1 (High Level)			Zone 2 (Ft. Vermilion - La Crete)			Zone 3 (Manning)			Zone 4 (Valleyview)			TOTAL STUDY AREA		
	<$10,000	>$10,000	Total[1]	<$10,000	>$10,000	Total[1]	<$10,000	>$10,000	Total[1]	<$10,000	>$10,000	Total[1]	<$10,000	>$10,000	Total[1]
Average Farm Capital:															
Land & Bldgs.	148,750	381,500	295,864 (330,500)	163,731	423,040	303,075 (462,885)	51,850	313,700	261,330 (231,470)	179,867	305,458	257,360 (162,986)	155,509	340,187	273,700 (293,801)
Machinery & Equipment	39,175	150,057	115,973 (127,349)	31,400	177,320	109,575 (268,490)	23,500	128,103	113,839 (83,149)	35,642	91,897	70,352 (60,530)	33,607	126,825	94,026 (153,394)
Livestock & Poultry	5,375	8,971	3,846 (5,757)	1,069	6,293	3,770 (8,006)	100	5,595	4,679 (12,022)	6,356	20,329	19,914 (35,347)	3,851	14,891	10,941 (75,360)
Other	2,300	16,014	11,027 (12,697)	10,146	4,986	7,459 (22,120)	3,783	44,542	30,984 (97,695)	3,899	12,451	8,376 (18,340)	2,612	12,392	8,919 (72,188)
TOTAL	195,600	560,342	427,709	206,354	612,639	423,897	79,233	491,960	410,832	225,764	430,135	356,002	195,579	494,305	387,586
Average Debt Structure:															
Long-Term (>5 yrs)	n.a	19,090	12,212 (30,243)	21,833	8,470	14,630 (34,500)	32,667	36,368	35,864 (67,029)	9,060	11,300	10,869 (12,680)	16,917	19,353	18,665 (50,114)
Int.-Term (1-5 yrs)	2,000	5,429	4,182 (7,718)	5,083	6,100	5,631 (8,064)	9,125	17,522	15,995 (19,550)	600	8,176	6,700 (14,147)	4,320	10,175	8,452 (34,363)
Short-Term (<1 yr)	3,000	12,143	8,964 (14,881)	1,458	5,214	3,461 (6,027)	4,250	10,926	9,712 (24,470)	2,260	6,214	5,454 (13,169)	2,376	8,086	6,407 (36,856)
TOTAL	n.a	36,662	25,358	28,374	19,784	23,750	46,042	64,816	61,571	11,920	25,690	23,023	23,613	37,614	33,524
Average Debt/Equity Ratio (%)	3.4	23.5	16.2	10.3	16.2	17.2	39.2	10.9	14.7	16.5	27.7	25.6	18.1	19.4	19.8

[1] Standard Deviation indicated in brackets.

The distance to a grain elevator averaged 38 miles - ranging from 11 miles in Zone 3 to 63 miles in Zone 2.

Livestock numbers are relatively low in all of the Study Zones - with generally fewer and fewer livestock per farm as you move north (from Little Smokey to High Level).

Gross farm revenue and off-farm income statistics are also provided in Table 3.4.1. These are discussed in detail following.

3.4.2 ASSET/DEBT PROFILE

Table 3.4.2 indicates average capitalization levels per farm in our study area as well as their accompanying (average) debt structure.

This capital structure can be compared with the following estimates for CD #15 and Alberta in general (average value/farm):

Item	CD #15	Alberta
Land and Buildings	$294,108	$516,073
Machinery/Equipment	66,288	75,138
Livestock	13,310	43,127
TOTAL	$373,706	$634,338

In general, capitalization levels are not as high in the Northwest. Most of this difference is a reflection of generally lower land prices in the region (see elsewhere).

Debt levels are also rather different for different Zones and with respect to the rest of Alberta.

On average, the debt/equity ratio for farmers in our survey area (for farms reporting) was about 19 percent. The average for Alberta in total is about 10 percent. Extremely high debt/equity ratios appear to be typical of smaller farms in the Manning area and larger farms in the Valleyview (and, to a lesser extent, High Level) region.

TABLE 3.4.3

MARKET PRICES FOR LOCAL LAND, AND AVERAGE CLEARING COSTS, 1982 ($/Acre)

e	Developed Land			Undeveloped Land			Av. Clearing Costs for Undeveloped Land
	Good	Average	Poor	Good	Average	Poor	
	311	243	187	110	85	60	198
	380	290	194	91	67	47	187
	368	272	175	96	82	67	210
	313	261	189	107	87	63	203
TAL	341	268	187	101	80	59	200

AGRICULTURAL LAND PRICES: STUDY AREAS AND PROVINCE, 1971-1982 ($/Acre)

Year	Valleyview I.D. 16	Manning I.D. 22	Ft. Vermilion I.D. 23	Province
1971	32	32	32	59
1972	44	38	31	71
1973	45	38	41	81
1974	64	64	53	108
1975	76	64	74	145
1976	98	78	79	177
1977	121	103	101	213
1978	135	141	129	269
1979	168	154	165	324
1980	230	228	190	386
1981	257	237	234	444
1982	254	252	243	470

Source: Alberta Agruculture, An Eleven Year Review of Agricultural Real Estate Values in Alberta, Resource Economics Branch, Edmonton, November 1982.

TABLE 3.4.5

AGRICULTURAL LAND TRANSFERRED, STUDY AREA AND PROVINCE, 1971-1982 (Acres)

Year	Valleyview I.D. 16	Manning I.D. 22	Ft. Vermilion I.D. 23	Province
1971	19578	19986	10077	1973179
1972	17163	21940	10814	2173501
1973	28210	35813	19228	3083401
1974	50908	49833	33152	3273815
1975	38555	47268	26103	3146075
1976	44095	54519	24957	2959710
1977	39364	41587	25221	2699518
1978	52505	42079	29650	2891027
1979	51620	45069	27616	2929154
1980	58899	46803	22094	2681710
1981	50979	48277	21591	2718437
1982	43289	33009	21538	2194714
Average Turnover 1981-1982	41,264	40,515	22,670	2,727,020
Total Farm Area 1981	575,593	597,724	406,550	47,218,170
Turnover Ratio	7.2%	6.8%	5.6%	5.8%

Source: Basic data from: Alberta Agriculture, *An Eleven Year Review of Agricultural Real Estate Values in Alberta*, Resource Economics Branch, Edmonton, November 1982.

3.4.3 LAND COSTS

Table 3.4.3 summarizes local land costs for three different qualities of land, depending on whether it is developed or undeveloped.

The average price of good land in the study area was $341/acre, while poor land was valued at $187/acre. The average price differences between Zones for any particular soils class are not very large.

Available secondary data (Table 3.4.4) suggests that these figures are probably fairly accurate. It can also be observed from this secondary data that land prices in the respective Study Zones are typically about one-half of average land prices for the province as a whole.

Additional secondary data (Table 3.4.5) are also suggestive of typical turnover ratios:

Zone	Ratios	Years
1-2	5.6%	17.9
3	6.8%	14.7
4	7.2%	13.4
PROVINCE	5.8%	17.2

Land tends to turn over somewhat faster in the Manning and Valleyview areas. But differences with other parts of the province are not large.

Undeveloped land prices range from about $60/acre to $100/acre. These prices largely reflect the sales price established for crown lands by government.

Also provided in accompanying Table 3.4.3 are estimated land development costs in the respective Zones. In 1982, this would have averaged about $200/acre; somewhat lower if the farmer could have done some of this work himself (Table 3.4.6). In addition to these clearing costs, however, there is also a very real cost associated with the time it takes to get land into full production and the time it takes to get top yields. This

apparently takes about two (2) and four (4) years respectively (see accompanying Table 3.4.7).

These data, in total, suggest that farmers and other agriculturalists who are now arguing that undeveloped land costs are "too high", given prevailing input costs and product prices, may be correct. A definitive response to this proposition, however, would require further analysis.

3.4.4 TYPICAL OPERATING EXPENSES

Average operating expenses per cultivated acre are provided in accompanying Table 3.4.8.

This data at least suggests what kind of technology typically characterizes each Zone and the study area in general. Some notes:

- Zone 2 is unquestionably characterized by the least intensive production technology, on average. They generally use very little fertilizer and chemical. Total production costs/acre are relatively low.
- Zone 3 apparently has relatively high unit costs of production.
- Larger farms generally farm more intensively.

3.4.5 TYPICAL CROP YIELDS

In Table 3.4.9 typical cropping patterns on new lands are reported, on a general basis for the study area. In Table 3.4.10, the farm survey data indicates typical crop yields and the range of values experienced during the last five years. The minimum values generally reflect the very adverse conditions of 1982 (drought and/or frost). Yields on new land (less than 6 years) are generally a little better than yields on older land.

Comparable secondary data for CD #15 (Table 3.4.11) suggests that the region as a whole generally obtains average yields which are somewhat lower.

TABLE 3.4.6

LAND CLEARING COSTS: CUSTOM VS. SELF (Percent)

Zone	Year 1		Year 2	
	Custom	Self	Custom	Self
1	51	49	13	87
2	85	15	35	65
3	85	15	29	71
4	54	46	41	59
TOTAL	66	36	33	67

TABLE 3.4.7

TIME REQUIRED TO CLEAR 160 ACRES AND OBTAIN TOP YIELDS (Years)

Zone	Clearing Time	Time to Obtain Top Yields
1	1.6	2.9
2	2.5	3.7
3	2.3	3.3
4	2.4	4.0
TOTAL	2.3	3.7

TABLE 3.4.8

AVERAGE OPERATING EXPENSES PER CULTIVATED ACRE FOR STUDY AREA FARMERS, BY ZONE AND GROSS FARM REVENUE CLASS[1]

Item	Zone 1 (High Level)			Zone 2 (Ft. Vermilion - La Crete)			Zone 3 ([illegible])			Zone 4 (Valleyview)			TOTAL STUDY AREA		
	<$10,000	>$10,000	Total[2]	<$10,000	>$10,000	Total[2]	<$10,000	>$10,000	Total[2]	<$10,000	>$10,000	Total[2]	<$10,000	>$10,000	Total[2]
Fuel, oil & lubricants	9.36	11.06	10.64 (4.70)	11.44	7.34	8.31 (8.25)	7.60	7.07	7.16 (3.52)	8.00	10.07	9.50 (7.47)	9.67	8.84	9.15 (6.95)
Fertilizers & lime	1.35	17.32	12.53 (25.30)	3.41	3.01	3.63 (4.04)	0.92	5.00	6.16 (5.31)	2.13	9.41	6.44 (9.00)	2.96	8.16	6.24 (11.32)
Ag. Chemicals	.00	2.00	1.66 (2.10)	.39	.45	.42 (.45)	1.00	2.16	2.12 (2.77)	2.06	1.22	1.76 (6.01)	1.64	1.40	1.49 (4.57)
Machinery Repairs/Maintenance	5.55	8.30	7.64 (4.80)	5.91	6.35	6.00 (5.17)	2.70	6.20	5.61 (4.66)	7.53	8.13	7.00 (9.57)	6.37	7.33	6.96 (7.37)
Utilities	11.30	2.36	5.03 (5.67)	6.32	2.51	4.41 (8.06)	5.30	2.07	2.75 (3.66)	12.06	4.15	7.30 (11.00)	9.74	3.00	5.61 (8.03)
Insurance	3.66	2.65	2.06 (2.35)	.62	1.31	.97 (1.30)	1.27	1.43	1.30 (1.63)	2.57	2.54	2.56 (2.20)	1.87	2.01	1.96 (2.00)
Other	n.a.	n.a.	n.a.	0.54	0.06	0.75	n.a.	15.52	11.45	6.00	20.01	14.82	n.a.	n.a.	n.a. n.a.
TOTAL	n.a.	n.a.	n.a.	26.62	20.76	23.16 (20.44)	n.a.	40.37	35.62 (22.48)	42.62	66.33	50.74 (50.43)	n.a.	n.a.	n.a. n.a.
Percent of Cult. Area Fertilized	32	43	60	20	47	38	70	52	55	20	43	33	28	46	40
Percent of Cult. Area Sprayed	12	56	42	17	22	20	45	32	35	4	24	16	13	29	23

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[1] Cash costs only, excluding interest costs.

[2] Standard Deviation indicated in brackets.

TABLE 3.4.9

CROPS GROWN ON NEW LANDS (Percent)

Zone	Wheat	Barley	Oilseeds	Forage	Other
1	28	31	27	6	8
2	34	26	20	5	15
3	26	26	23	9	14
4	28	34	19	18	1
TOTAL	29	31	21	12	7

On the other hand, the range of values obtained from the farm survey data may exaggerate typical yield fluctuations in the study area. For CD #15 as a whole, the fluctuations in approximately 3 out of every 5 years should probably not exceed the following:

Wheat	±	5 bus./acre
Barley	±	6 bus./acre
Canola	±	3 bus./acre

This information is very useful when assessing the risk and uncertainty typical of crop production in the Northwest.

3.4.6 FARM REVENUE CHARACTERISTICS

The gross farm revenue estimates (referring again to Table 3.4.1) are particularly interesting in that they clearly underline how heterogeneous the farm population really is. Observe:

- the large average differences apparent between Zones
- the large average differences between larger and smaller farms

In 1982, the average gross farm revenue for farmers in our study area was about $32,000/farm.

Accompanying Table 3.4.12 indicates that 80-90% of all farm revenue in the study area typically comes from crop sales. Livestock (particularly beef) sales make up most of the remainder. In 1982, government Drought Assistance and Crop Insurance was also important, particularly in the High Level area.

It must be emphasized, however, that these are gross farm revenue estimates; not net farm income calculations. The latter would be calculated approximately as follows:

TABLE 3.4.10

CROP YIELDS FOR STUDY AREA FARMERS, BY ZONE (Bus./Acre)

Zone	Age of Land	Wheat		Oats		Barley		Canola		Alfalfa(tons/acre)	
		Av.	Range	Av.	Range	Av.	Range	Av.	Range	Av.	Range
1	Old	29	15-46	55	26-89	46	22-66	19	7-28	1.3	0.4-2.0
	New	37	18-53	55	25-98	48	18-79	22	9-36	2.0	1.0-2.0
2	Old	26	11-41	53	31-85	35	17-52	20	10-28	1.6	1.2-2.3
	New	32	14-43	72	14-95	37	15-52	17	14-24	n.a.	n.a.
3	Old	29	12-44	63	30-93	43	14-63	17	7-28	1.8	-
	New	39	15-50	73	50-108	54	15-68	21	4-30	n.a.	n.a.
4	Old	34	16-47	70	35-94	46	25-60	18	9-28	1.9	1.0-2.3
	New	36	22-41	66	49-88	49	31-64	19	11-28	2.5	1.0-3.0
TOTAL	Old	30	13-45	62	31-91	43	20-60	18	8-28	1.6	-
	New	36	18-46	65	37-94	47	22-64	20	11-29	2.3	1.0-2.5

Gross Farm Revenue
less Cash Operating Costs
less Depreciation
less Debt Re-Payment
equals Net Farm Income

Net Farm Income would then represent the return to farm labour, the farmer's own equity, and management. Operating costs (including depreciation) typically amount to about 40-50 percent of gross farm revenue.

As a rule-of-thumb, a farm family would probably need a gross farm revenue in excess of $50,000/annum to make a "decent" living from farm operations totally independent of all other income sources.

Conversely, off-farm income levels are, on average, relatively high - particularly for farmers with a low average gross farm revenue. Off-farm income averages over $12,000/farm, ranging from an average of $9,800/farm in Zone 2 to an average of $16,000/farm in Zone 3. On average, this income would exceed the net income derived from farming operations.

For smaller farmers (gross farm revenue < $10,000), there is an almost exclusive reliance on off-farm income:

Zone	Off-Farm	Gross Farm Revenue x .5	Approx. % Off-Farm Income
1	$24,948	$2,622	90%
2	13,242	3,300	80%
3	23,800	2,491	87%
4	14,937	2,167	87%
ALL ZONES	$16,538	$2,600	86%

For larger farmers (gross farm revenue > $10,000), predictably, the estimated dependence on off-farm income is much lower:

Zone	Off-Farm	Gross Farm Revenue x .5	Approx. % Off-Farm Income
1	$ 4,143	$26,143	14%
2	7,110	13,929	34%
3	14,117	33,841	29%
4	10,245	21,194	34%
ALL ZONES	$10,245	$23,641	30%

TABLE 3.4.11

WHEAT, BARLEY AND CANOLA CROP YIELDS, STUDY AREA AND PROVINCE, 1966-1982 (Bushels/Acre)

Year	Wheat		Barley		Canola	
	CD15	Province	CD15	Province	CD15	Province
1966	21.9	29.4	31.8	41.0	14.0	17.6
67	17.8	22.7	21.9	32.2	9.9	13.9
68	25.5	25.7	36.6	38.3	14.8	16.7
69	19.2	26.4	24.4	40.0	11.2	14.3
1970	22.9	27.7	31.8	42.0	16.0	17.6
71	27.7	26.4	35.2	39.4	14.9	16.1
72	26.5	27.4	36.5	44.2	17.0	18.5
73	24.8	27.0	33.8	39.0	14.3	16.5
74	22.7	24.3	33.7	36.9	14.8	16.3
1975	29.0	30.0	38.1	42.2	16.3	17.9
76	33.0	32.5	39.6	45.4	14.2	19.7
77	27.6	24.6	35.8	45.9	17.2	22.9
78	27.6	29.8	34.4	45.0	18.3	20.9
79	33.4	28.5	42.0	45.9	15.2	18.1
1980	31.4	33.3	42.0	50.8	20.1	22.7
81	28.7	34.2	34.0	48.5	15.9	21.4
X̄ 66-81	26.23	28.12	34.48	42.29	15.26	18.19
S 66-81	4.54	3.28	5.41	4.70	2.46	2.71
C.V. 66-81	17.3	11.7	15.7	11.1	16.1	14.9

Source: Alberta Agriculture, Agricultural Statistics;
Field Crops, Statistics Branch, Edmonton, Various Years.

Approximately one-third of all farmers surveyed in the study area (for which revenue data was available) had gross farm sales of less than $10,000 during 1982.

3.4.7 SUMMARY

This section of the Report presented the information collected during the on-farm interviews. One hundred and fifty on-farm interviews were conducted in July, 1983. The following summarizes the findings of these interviews:

- the average age of the farm operator was 44 years
- the average age of the farm was 22 years which is relatively low compared to the rest of Alberta
- those farmers interviewed averaged 14 years at their present location
- approximately 66% of the land(owned and leased) is cultivated
- 21% of the land was in summer fallow
- 75% of the land operated by the farmers surveyed was owned
- the average distance to a grain elevator was 38 miles; this ranged from a low of 11 miles to a high of 63 miles
- the number of livestock was generally low and tends to decrease in numbers as one moves northward
- the capitalization levels are not as high in the Northwest as the rest of Alberta; most of the difference is due to the lower land prices in the region
- the debt/equity ratio for the farmers interviewed is 19%; the debt/equity ratio on a provincial level is 10%
- the local land costs for good land is about $341/acre and $187/acre for poor land; this is about 50% lower than the rest of the province
- undeveloped land costs about $60/acre to $100/acre; the land development costs are about $200/acre; land is generally not brought into full production until 2 to 4 years after it has been cleared
- larger farms are generally farmed more intensively
- the average gross farm revenue is $32,000/farm with 80%-90% of this coming from crop sales
- there is a great deal of reliance by the farmers interviewed on off-farm income sources; for large farms this was about 30% of their total income and for small farms this was about 86%

TABLE 3.4.12
GROSS FARM REVENUE, BY SOURCE 1982 (Percent)

Zone	Crops	Livestock	Poultry	Other [1]	Total
1	83	7	0	10	100%
2	89	10	*	1	100%
3	88	8	0	4	100%
4	85	13	1	1	100%
TOTAL	86	11	*	3	100%

* Less than 1 percent.

[1] Primarily crop insurance.

SECTION 3.5

THE RESOURCE INTERFACE: FORESTRY AND AGRICULTURE

SECTION 3.5
THE RESOURCE MANAGEMENT INTERFACE
FORESTRY AND AGRICULTURE[1]

INTRODUCTION

The purpose of this section of the Report is to describe the primary interface between Forestry and Agriculture. There have been many instances where the two land uses have conflicted which has created an ongoing controversy.

The following describes the primary areas where the two land uses interface. We also provide rationale why we feel the expansion of agricultural lands (as noted in this Study) in the Study Area will not significantly impact the forestry industry.

3.5.1 THE FORESTRY INDUSTRY AND THE FARMER

As was noted previously, 30% of the farmers surveyed felt that the most important benefit of the forest was as a source of off-farm employment to the farmer. Furthermore, 8.5% of all farmers surveyed reported that they worked part-time in the forest industry. Also, 21.4% of all Zone 2 respondents reported that they received some income directly from the forest industry.

This response is supported in our interviews with representatives of the forest industry. Of the 2,617 man-years in the forest industry in all of Northwestern Alberta, about 768 or 29% are farmers. This equates to a total annual expenditure for farmer wages of approximately $20,736,000. The 768 man-years represent many more jobs (or farmers employed) since many farmers are hired on a 4 or 5 month basis, especially during the winter season. Forestry is indeed an important source of income to farmers.

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[1] Other issues related to Forestry are dealt with throughout the Report.

3.5.2 WOODLOTS

Farmers rely on the forest to provide them with timber for lumber, fence posts and fire wood. In the farmers survey, two questions were asked of the farmer regarding the importance of the forest for timber (see page opposite). On the question of timber devoted to farmer use the response was as follows:

o more than enough	- 5.3%
o enough	- 48.4%
o not enough	- 26.3%
o no opinion	- 19.9%

When asked to rank the following benefits of the forest resource, they were priorized as follows:

o off-farm employment	- 30%
o farmer wood supply	- 23%
o recreation	- 17%
o grazing leases	- 10%
o other	- 4%

These figures indicate that farmers do realize the importance of the forest to their wood supply, yet most feel there is an adequate amount now provided. There is however, a significant number of farmers who responded, that felt there was not enough timber devoted to farmer use (26.3%).

In our interviews with the Alberta Forest Services the need to conserve and set aside woodlots for farmers was a major issue. Apparently, there is a concern that if woodlots are not set aside, farmers will deplete the close-to-farm wood supply quickly which in turn will force them to travel further and further for a timber source. According to our survey, farmers are willing to only travel an average of 23 miles. Based on the survey, some farmers are already travelling beyond this 23 mile limit.

With the potential for a considerable expansion of agriculture land use in the Study Area, there is the need to ensure that woodlots are set aside to accomodate the farmer's needs. This requirement should be fundamental to the planning of the agricultural land expansion process.

3.5.3 LAND MANAGEMENT

The Alberta Forest Service has as it's primary objective, to manage the forests of Alberta for the greatest economic and social benefits for the people of Alberta. To achieve this objective, forests are managed on an integrated management approach that considers timber production, watershed protection, recreation, fish and wildlife habitat, domestic livestock grazing, fire protection and mineral development.

Except during actual timber harvesting and for several years thereafter, the forest land is capable of supporting multiple uses. During the early years after cutting, the production of browse and grasses is often very substantial and diminishes as the forest grows and the canopy closes. The benefits to ungulates during the 'early years' after harvesting are significant in the form of food, while the benefits to other users (e.g. recreation and tourism) which require more mature forest stands would be lower. As the forests mature, benefits would shift. The key principal is that forests can be managed to facilitate benefits to many users, but not all at the same time.

Agriculture (tillage) is not managed on a forest ecosystem basis and is a direct land-use conflict with forestry. When deciding which land use should be pursued, the benefits that flow from each must be the basis of the decision.

However, in deciding which land-use to pursue, the question of amount of land requirement for each use also must be considered. As will be presented later, the amount of demand for agricultural land outlined in this Report likely can be met, without significantly disrupting the benefits that the forest now provides to its many users.

3.5.4 THE FORESTRY INDUSTRY AND AGRICULTURAL EXPANSION

The approach used to assess whether there would likely be any impact on the forest industry due to agricultural expansion (of the amount noted in this Report - i.e. 154,000 acres/year for 20 years) is as follows:

(a) estimation of amount of land available in the Yellow Area for agricultural expansion

(b) from (a) above, estimation of the amount of area required in the Green Area to fulfill the demand as reported in this Report

(c) estimate the current allocation of the Green Area to the forest industry

(d) estimate if there is likely to be any impact

(a) Estimate Potential Agricultural Land Available in the Yellow Area

According to a recent report (1983) by Energy and Natural Resources, (Resource Planning Branch) Soil Capability For Agriculture, the greatest potential for agricultural expansion in the Study Area is in the Green Area.[1]

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1. Source: Alberta Energy and Natural Resources, Resource Planning Branch, Soil Capability For Agriculture, 1983, page 32.

Of the land in the Yellow Area E.N.R. estimates that between 1,700,000 to 3,500,000 acres of C.L.I. Class 2-4 land remains undeveloped. Some of this land is reserved from agricultural development for other reasons such as fish and wildlife, environmental and forest reserves. Some of this land exists in small isolated units and is not economically feasible for agricultural development. A realistic amount of agriculturally developable land is difficult to determine. It may be as low as 500,000. At an expansion rate of 154,000 acres per year, the amount of land available in the Yellow Area would be able to supply the demanded amount of land for a period of 3-11 years.[1]

(b) Estimate Amount Land Required from Green Area to Meet Reported Demand

If it is assumed that there are 3-11 years of supply available in the Yellow Area, there is a requirement for 1,386,000-2,618,000 acres of land to be withdrawn from the Green Area to meet the demand as noted in this Report (i.e. 154,000 acres per year for 9 years or 154,000 acres per year for 17 years). Inherent in the above, is the premise that the land available in the Yellow Area is accessible and meets the spatial requirements of the 'demanders'.

(c) Estimate of Current Allocation of Green Area to Forest Industry

In a report prepared by W.J. Ondro and T.B. Williamson, The Forest Industry In The Economy Of Alberta, 1978-79 (1982), it was estimated that there is 34,077,000 acres of productive or potentially productive land in the four forests in the Study Area as follows:

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[1] The 1,700,000 acre figure is based on the 'Soil Capability For Agriculture' report. In our discussions it was noted that some of this land is in reserve and that the effective amount of class 4 or better land could be as low as 500,000 acres. The amount of land in reserve is questionable as is the fact whether it will stay in reserve classification. Therefore, because of the uncertainties of the actual figure, the range of 500,000 to 1,700,000 will be used. Based on this range and the amount of land demanded as reported, there is from 3-11 years of supply available in the Yellow Area.

o Grande Prairie - 5,571,000
o Slave Lake - 8,038,000
o Peace River - 6,866,000
o Footner Lake - 13,602,000[1]

However, of this total 34,077,000, it has been estimated that only 20,343,807 acres are productive.[2]

Currently, the forest industry is allocated approximately 4,355,184m^3 of timber in the four forests. With an average yield per acre of 68m^3 and a maturity time of 90 years, this would indicate that about 28% of the productive land is currently allocated to the forest industry.[3]

It should be noted however, that the current allocation is contingent upon the existing F.M.A.'s and quotas held by the forest industry in the Study Area. It is possible that if these lands were not restricted solely to the existing companies, the existing allocation could well be higher. This would result in a higher percentage figure than the 28% previously noted.[4]

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1. Source: Ondro, W.J., Williamson, T.B., The Forest Industry In The Economy of Alberta, 1978-89, 1982, page 31.

2. Source: Susan Calp, Alberta Forest Services, Alberta Energy and Natural Resources.

3. The 4,355,184m^3 figure is taken from the table opposite page 5, in Section 4.3 of this Report. The 68m^3 is the figure used by the Alberta Forest Service. The 90 year figure is simply an average of the years to maturity for deciduous (60 years) and coniferous (120 years) timber.

   The calculation used to arrive at the 28% is:

   $$\frac{4,355,184 - 68 \times 90}{20,343,807}$$

4. Personal communication, E. Gillespie, Alberta Forest Service.

(d) Estimate of Impact of Agricultural Expansion (as Reported) on the Forest Industry

When other considerations are added (such as the preference for planned and orderly growth of the agricultural land into the Green Area, the distance between the areas logged by the forest industry and the Yellow/Green Area boundary and similar factors), it would appear that the overall or region-wide impact of the agricultural expansion (as presented in this Report) on today's forest industry would not be very significant.[1] There may however, be specific, localized conflicts.[2]

Even though we do not expect that there would be a significant overall impact, it is important to assess what the costs to the forest industry would be if the agriculture land expansion were to impact on the timber production areas. These figures are useful in providing an understanding of potential impacts especially at the land allocation stage of expansion should agricultural land and forest productive land be in a land-use conflict. The table on the page opposite presents this information.

3.5.5 COMMUNITY STABILITY

Both the forest industry and the agricultural sectors are important to the stability and social/economic conditions of the communities in the Study Area. Both are important sources of employment and income to the farmer. The forest industry expends approximately $189,820,000 annually in the Study Area. This is a significant and secure source of social and economic stability for communities.

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[1] Note that we are addressing potential impacts in light of some lack of data on supply and on the basis of today's technology and levels of development. Changes in markets, technology (e.g. regarding the use of aspen stands) and rates of cut, may lead to different levels of impact than those envisaged here, and could of course constrain future agricultural and/or forestry development options.

[2] For example, the coniferous timber in the Grand Prairie Forest has been completely allocated to the forest industry.

3.5.6 LAND MANAGEMENT INTENSIFICATION

There has been a call for better land management through intensification for both forestry and agriculture. It has been reported to us on many occasions that forestry would not require all of the land base it now uses, if its use of the land were more intensive (e.g. stock planting, weeding programs, thinning, drainage, etc.). Conversely, the same is said of agriculture (i.e. the land available can produce higher yields than is currently occurring, so why the need for more land?).

Intensification is an issue for both the forest industry and agriculture sector to deal with. There is of course the financial feasibility aspect to this issue which makes resolution more complicated.[1]

3.5.7 FOREST INDUSTRY ISSUES

The following presents the issues, as reported to us during our interviews with the forest industry representatives:

1. Currently, the more agricultural expansion there is, the higher the costs of wood inputs to the forestry industry. This is because agricultural expansion is likely to occur adjacent to already cleared land which in turn radiates-out from the infrastructure (highways, etc.) and the communities of the Peace Region. Therefore, transportation costs that the forest industry would have to pay in bringing the wood to the mills (also located in or near population centres), would increase. In terms of the total expenditures made by the forest industry, the cost of round wood supplied to the mill is the largest. Of the two main components of the wood input expenditures (harvest and transportation), transportation, in the Peace Region, is the highest.

2. The loss of timber producing land to agriculture could result in the loss of forestry investment in the Peace Region and Alberta as a whole. The forestry industry is characterized by requirements for large capital investments that are directly dependent upon annual allowable cuts and the length of time it takes to produce a commer-

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[1] For example, although more intensive forest management can occur, it may not be cost-effective. Financially, it may be more advantageous to cut more land. The same general premise can be said of agriculture.

cial tree. The industry requires a secure land base (ie., tree stock) if it is to be assured that the lumber required for processing and sale will be available to meet their high investment cash flows.

Regardless of the demand for agricultural land, the companies that have invested in capital projects have done so on the basis that the land and tree stock would be available for harvesting.

3. Most representatives interviewed reported that they realized that agriculture likely can play a larger role in the development of the Region. However, where the expansion occurs and when it does occur, must be done in a planned and orderly way, with full input from the forest industry.

4. The potential use of deciduous trees is an important issue that could significantly change the overall impact of the forest industry in the Region, as well as its requirement for land.

5. There is the perception that the forest industry is not as important to Alberta as it should be. Therefore, although tenure of land (F.M.A. and/or quota) may not be 'taken' away from the industry, there are more and more restrictions being placed on the industry, which results in higher costs.

6. There are also other non-compatible land uses with forestry in addition to agriculture. These uses are being effectively lobbied and land is being withdrawn from forestry use. These other uses include ecological zones, prime protection zones, recreation zones, etc.

3.5.8 SUMMARY

Although forestry and Agriculture may compete for the same land base, they also rely upon each other in Northwestern Alberta. Farmers make up nearly 30% of the forestry sector's workforce. Nearly 10% of the farmers in the study area are employed directly in the forest industry. Farmers also rely upon the forest woodlots for a supply of lumber.

The issue of forestry versus agriculture (tillage) has a basis in the fact that the two land uses are not compatible in time or space (as are other land uses that are based on the forest ecosystem). Yet both land uses are important to the farmer and the individual communities. In the Study Area, the significance of this conflict is reduced due to the likely order of magnitude of the potential demand (as estimated in this Report) coupled with the amount of land available in the Yellow Area and the amount of land currently being used by the forest industry.

APPENDIX A.3.2.1

PROFILE OF AGRICULTURE
IN
NORTHWESTERN ALBERTA*

*The authors gratefully acknowledge the extensive assistance of NADC personnel especially Mr. Rick Sloan, Mr. Joe Friedel, Ms. Dean Munro and Ms. Debby Raymond in the preparation of the Tables and Figures herein.

PROFILE OF AGRICULTURE IN NORTHWESTERN ALBERTA

This profile has been prepared from secondary data sources to (a) provide the reader with a statistical overview of existing agriculture in Northwestern Alberta vis-a-vis other regions of the province, and (b) serve as a cross-reference for our analysis of the on-farm survey information summarized elsewhere in this report.

In this latter context, the reader should also be cautioned that the boundaries of our four Study Zones are not identical to the Improvement District (I.D.) boundaries for which secondary data is readily available. But the correspondence is approximately as follows:

Zones 1 and 2	I.D. #23
Zone 3	I.D. #22
Zone 4	I.D. #16

A few pertinent comments on Tables (A.3.2.1)-1 to (A.3.2.1)-8 following are also in order:

- The most important point (which cannot be overemphasized) is that agriculture in the respective study zones and in the Northwest in general is NOT very different from other parts of Alberta:
  - age of farms
  - on-farm residency
  - farm organization
  - average size of farm
  - land tenure
  - cropping patterns
  - role of off-farm work
- At the same time, there are some general qualitative differences:
  - a greater dependence on cash crops, especially canola and honey
  - a lessor dependence on livestock production
  - relatively lower capitalization levels
  - relatively less intensive crop production, especially with respect to capital inputs such as fertilizer and chemicals
  - relatively lower average farm sales per farm
- Numerous other rather unique aspects of farming in North Western Alberta are not clearly reflected in the secondary data provided herein. This includes unique locational/climatic factors, social characteristics, the dynamics of growth, etc.

TABLE (A.3.2.1)-1
NUMBER OF FARMS, AGE AND RESIDENCE OF OPERATOR, TYPE OF ORGANIZATION AND AVERAGE FARM SIZE

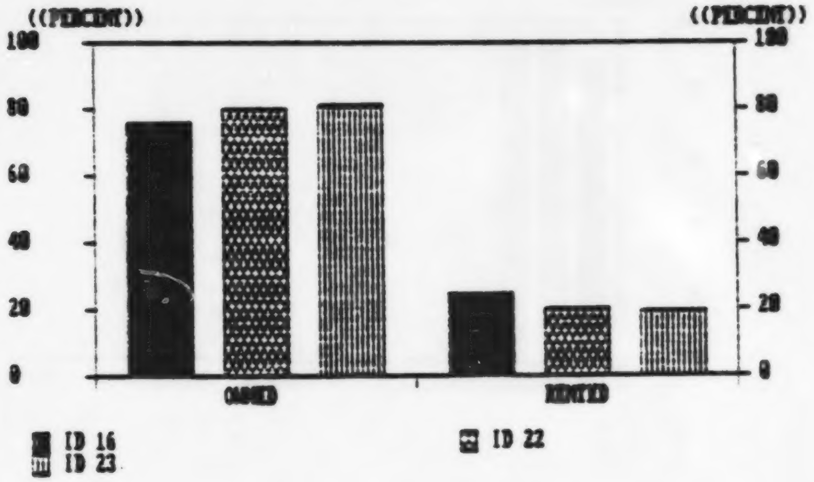
ITEM	ID #16 (VALLEYVIEW)		ID #22 (MANNING)		ID #23 (FT. VERMILION)		CD #15 (N.W. ALBERTA)		OTHER ALBERTA		TOTAL ALBERTA	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total Number of Farms	856		812		578		8,239		49,817		58,056	
Average Age of Operator (Yrs.)	44		45		42		44		47		46	
Residence:												
Reporting	758		703		505		7,178		44,291		51,449	
On-Farm (9-12 months)	717	95	664	94	476	94	6,827	95	43,198	98	50,597	97
On Farm(<9 months)	41	4	39	6	29	6	351	5	1,093	2	1,444	3
Organization:												
Individual	771	90	759	93	535	93	7,440	90	42,729	86	50,169	86
Partnership:												
written agreement	28	3	5	1	9	2	167	2	1,279	3	1,446	2
no wirtten agreement	38	4	32	4	28	5	458	6	3,205	7	3,723	6
Incorporated	15	2	15	2	6	1	155	2	2,304	5	2,459	4
Other	4	0	1	0	-	0	19	-	240	0	259	0
Average Area of Farms (acres)												
Owned	510	76	592	80	568	81	565	76	522	63	528	65
Rented	163	24	144	20	135	19	176	24	303	37	285	35
Total	672		736		703		741		825		813	

Sources:

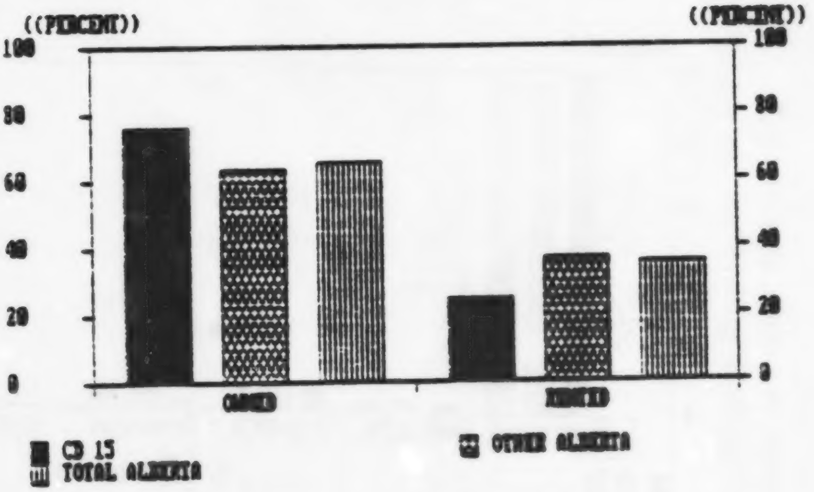
(1) Statistics Canada, 1981 Census of Canada, Agriculture, Alberta, Catalogue 96-910, Ottawa, October, 1982, P p. 13-1 to 13-4.

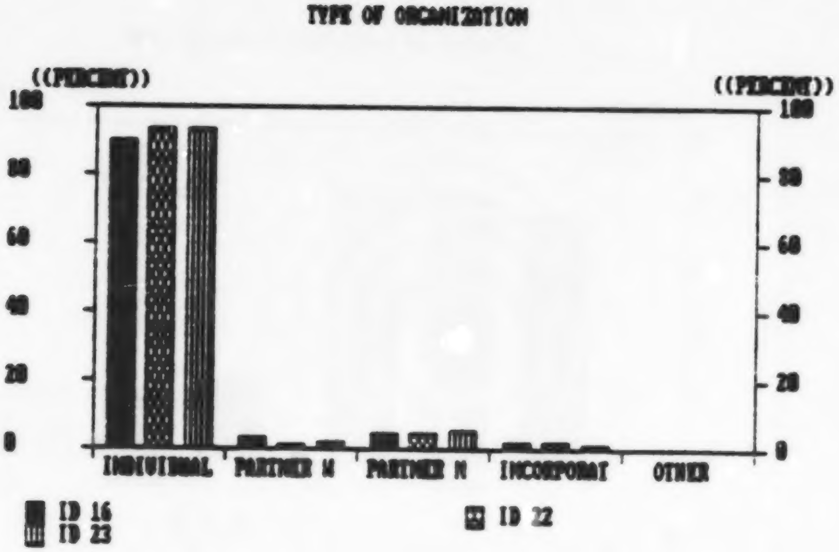
(2) Alberta Agriculture,Statistics Branch, 1981 Census of Agriculture for Alberta, ID, MD, and County Data by Region, Edmonton, P p. 1, 7 and 112.

RELATION OF OWNED LAND TO RENTED LAND



FARM LAND OWNED COMPARED TO LAND RENTED




TYPE OF ORGANIZATION

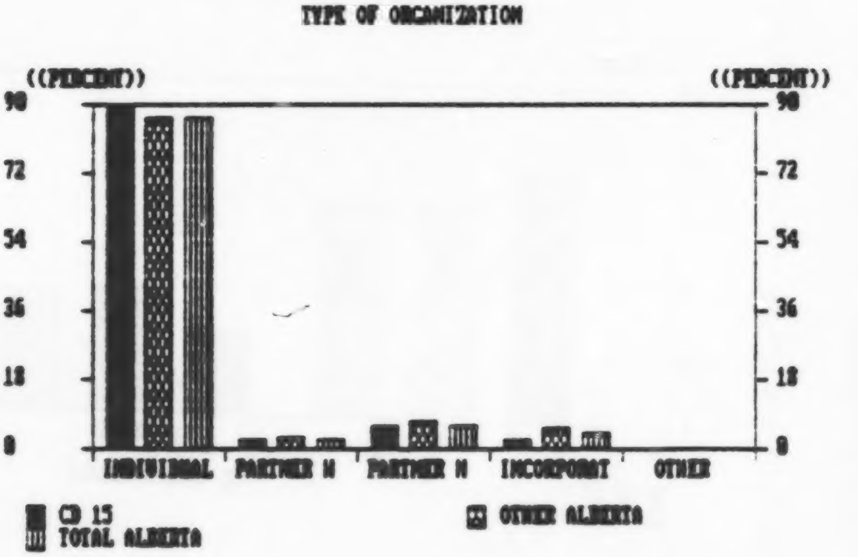

TYPE OF ORGANIZATION

TABLE (A.3.2.1)-2
TOTAL LAND AREA AND LAND USE ON FARMS, 1980

ITEM	ID #16 (VALLEYVIEW)		ID #22 (MANNING)		ID #23 (FT. VERMILION)		CD #15 (N.W. ALBERTA)		OTHER ALBERTA		TOTAL ALBERTA	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total Land Area	8,477,077[1]		1,874,204		26,355,799		59,488,264		98,222,456		157,710,720	
Total Area of Farms	575,593		597,724		406,550		6,107,144		41,111,026		47,218,170	
Use of Farmland												
A. Improved												
Crops:												
Wheat	47,835	8	43,463	7	43,018	11	693,630	11	6,011,806	15	6,705,436	14
Oats	18,850	3	15,519	3	8,481	2	163,534	3	1,147,547	3	1,311,081	3
Barley	63,321	11	129,621	22	56,209	14	1,095,104	18	5,337,854	13	6,432,958	14
Canola/Rapeseed	29,409	5	36,992	6	49,418	12	470,458	7	984,747	2	1,455,205	3
Feeder Crops[2]	67,712	12	58,078	10	14,946	4	604,827	10	3,599,311	9	4,204,138	9
Forage Seed	10,890	2	14,367	2	2,862	1	150,735	2	52,100	0	202,835	0
Other	419	0	220	0	120	0	6,244	0	36,161	0	42,405	0
Total Crops:	238,436		298,240		175,054		3,184,532		17,169,526		20,354,058	
Improved Pasture	46,498	8	31,532	5	9,745	2	318,943	5	3,588,887	9	3,907,830	8
Summerfallow	49,781	9	71,672	12	63,264	16	748,218	12	4,701,613	11	5,449,831	12
Other Improved	14,114	2	14,361	2	17,010	4	131,382	2	603,334	1	734,716	2
B. Unimproved												
Woodland	48,327	8	151,119	9	64,909	16	406,632	7	810,788	2	1,217,420	3
Other Unimproved	187,337	33	142,035	24	77,030	19	1,433,270	23	13,616,393	33	15,049,663	32

[1] See: NADC, Trends in Northern Alberta, pp. 14 and 35.

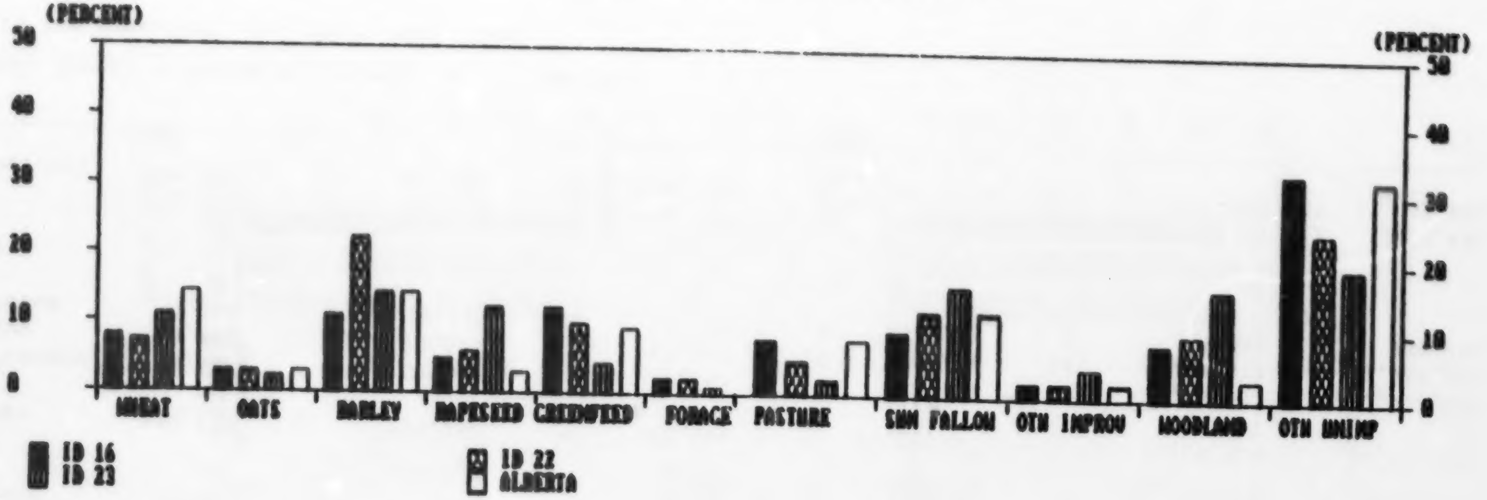
[2] Hay, oats for greenfeed, and other feed crops.

Basic Sources:

(1) Statistics Canada, op. cit., pp. 12-1 to 12-4 and 16-1 to 18-4.

(2) Alberta Agriculture, op. cit., pp. 22,28,29,36,42,50 and 56.

TOTAL LAND AREA & LAND USE ON FARMS, 1980



TOTAL LAND AREA & LAND USE ON FARMS, 1980

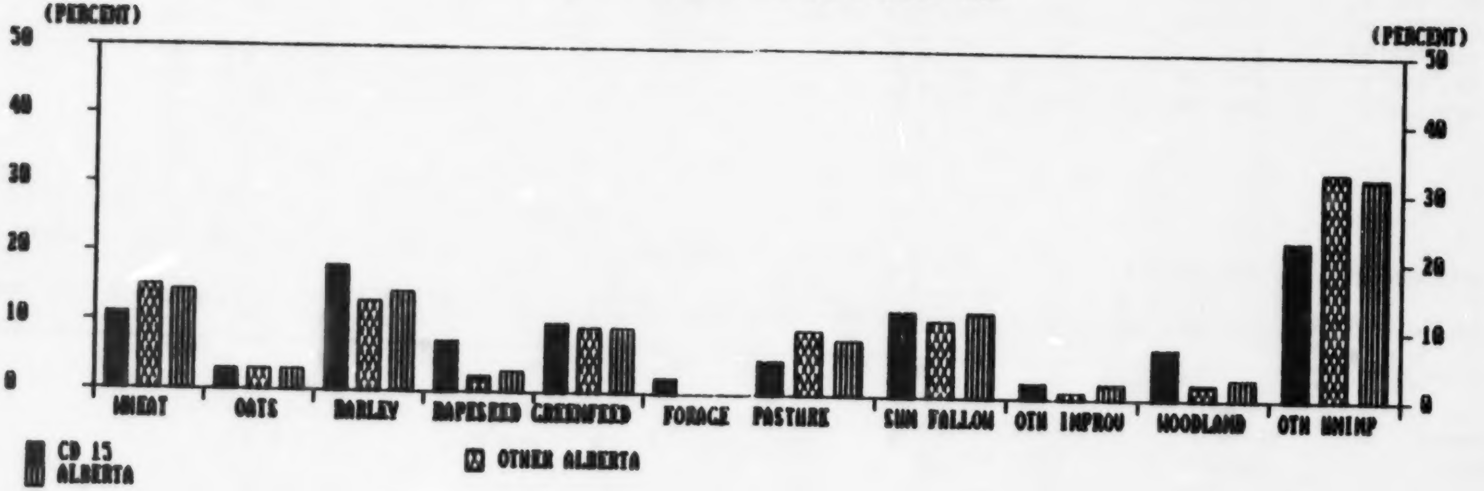


TABLE (A.3.2.1)-3

TOTAL LIVESTOCK & POULTRY NUMBERS FOR FARMS REPORTING, 1981

ITEM	ID #16 (VALLEYVIEW)	ID #22 (MANNING)	ID #23 (FT. VERMILION)	CD #15 (N.W. ALBERTA)	OTHER ALBERTA	TOTAL ALBERTA
Total Cattle	23,301	11,974	4,552	179,024	4,013,863	4,192,887
Cattle on Feed	1,416	596	182	14,293	745,972	760,265
Hogs	7,137	3,287	3,850	46,885	1,152,512	1,199,397
Sheep	930	1,111	252	15,482	185,812	201,294
Horses	1,865	942	541	12,640	106,068	118,708
Laying Hens/ Broilers	34,775	25,878	36,565	334,862	8,855,663	9,190,525
Other Poultry[1]	2,836	1,636	1,071	15,469	1,085,493	1,100,962

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[1] Turkeys, geese, and ducks.

Sources:

(1) Statistics Canada, op.cit., p p. 24-1 to 24-4.

(2) Alberta Agriculture, op.cit., p p. 78, 84, 85, 91, 92, 98, 99 and 105.

TABLE (A.3.2.1)-4

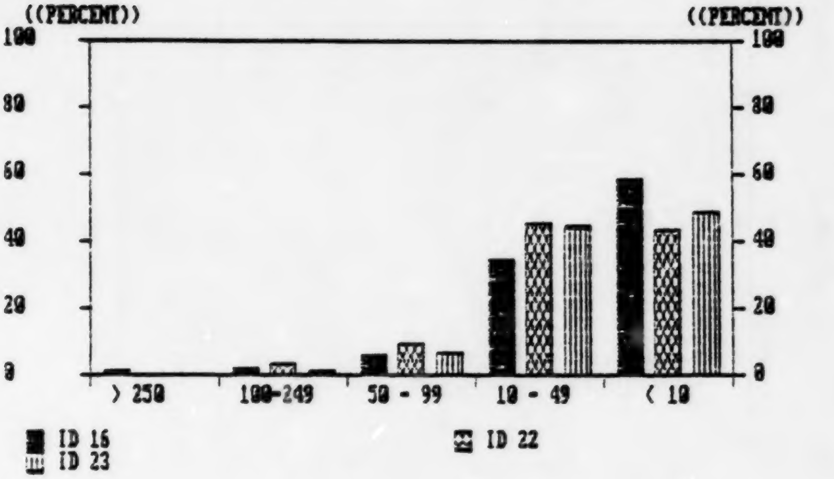
FARMS CLASSIFIED BY TOTAL GROSS FARM REVENUE, 1980

SALES CLASS	ID #16 (VALLEYVIEW)		ID #22 (MANNING)		ID #23 (FT. VERMILION)		CD #15 (N.W. ALBERTA)		OTHER ALBERTA		TOTAL ALBERTA	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total Farms	856		812		578		8,239		49,817		58,056	
Sales Class:												
$250,000 and over	5	1	2	0	-	0	44	1	1,653	3	1,697	3
$100,000 - $249,999	16	2	21	3	8	1	336	4	5,294	11	5,630	10
$50,000 - $99,999	53	6	70	9	40	7	1,017	12	8,856	18	9,873	17
$10,000 - $49,999	288	34	369	45	253	44	3,582	43	19,470	39	23,052	40
Under $10,000	494	58	350	43	277	48	3,260	40	14,544	29	17,804	31

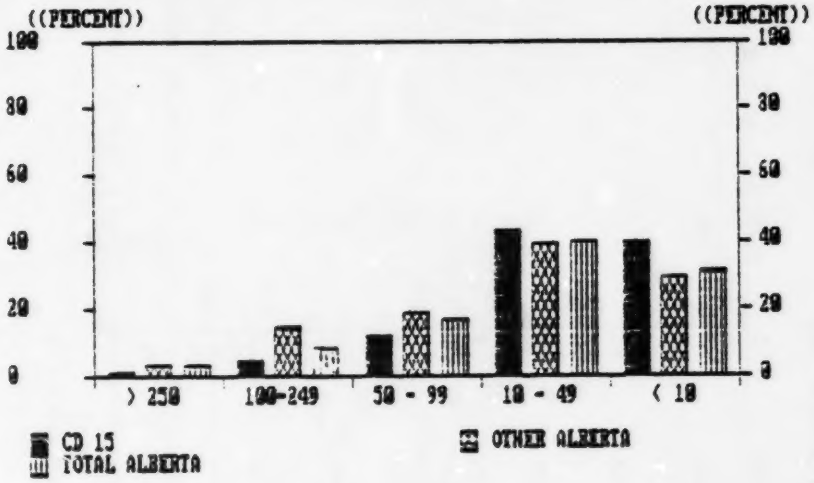
Sources:

(1) Statistics Canada, op.cit., pp. 14-1 to 14-4.

(2) Alberta Agriculture, op.cit., p.147.



FARMS CLASSIFIED BY TOTAL GROSS FARM REVENUE



FARMS CLASSIFIED BY TOTAL GROSS FARM REVENUE

TABLE (A.3.2.1)-5

FARMS WITH SALES OF $2,500 OR MORE CLASSIFIED BY PRODUCT TYPE[1]

PRODUCT TYPE	ID #16 (VALLEYVIEW)		ID #22 (MANNING)		ID #23 (FT. VERMILION)		CD #15 (N.W. ALBERTA)		OTHER ALBERTA		TOTAL ALBERTA	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Number of Farms Reporting	623		694		477		6,952		44,212		51,164	
Small Grains (e.g., Wheat)	262	42	465	67	368	77	4,152	60	12,341	28	16,493	32
Wheat	78	13	59	9	41	9	898	13	6,480	15	7,378	14
ther Crops[2]	55	9	32	5	5	1	352	5	2,420	5	2,772	5
attle	148	8	71	10	11	2	957	14	15,541	35	16,098	31
her Livestock/ Poultry[3]	41	7	27	4	25	5	282	4	4,485	10	4,767	9
xed	39	6	40	6	27	6	311	4	3,345	8	3,656	7

Defined whereby gross revenue of the commodity in question exceeds 50% of total farm receipts.

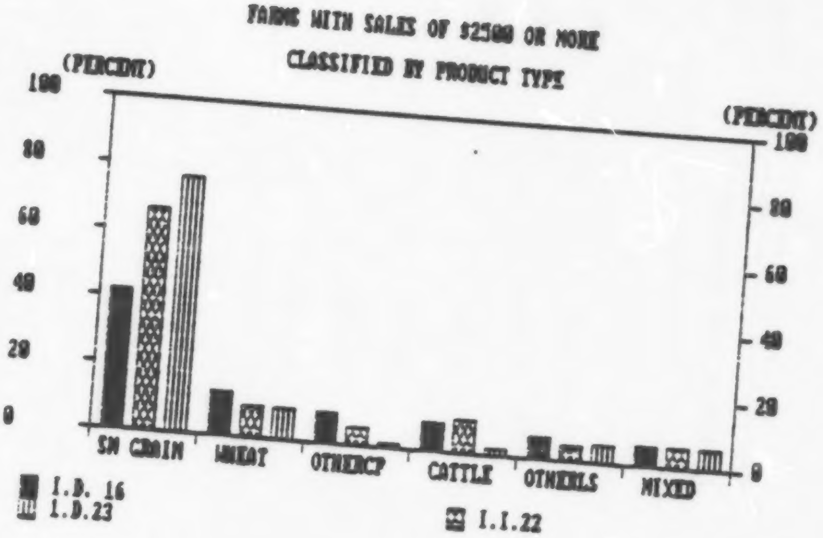
Includes field crops other than small grains, fruits and vegetables, and miscellaneous specialties.

ncludes dairy, hogs, and poultry.

ces:

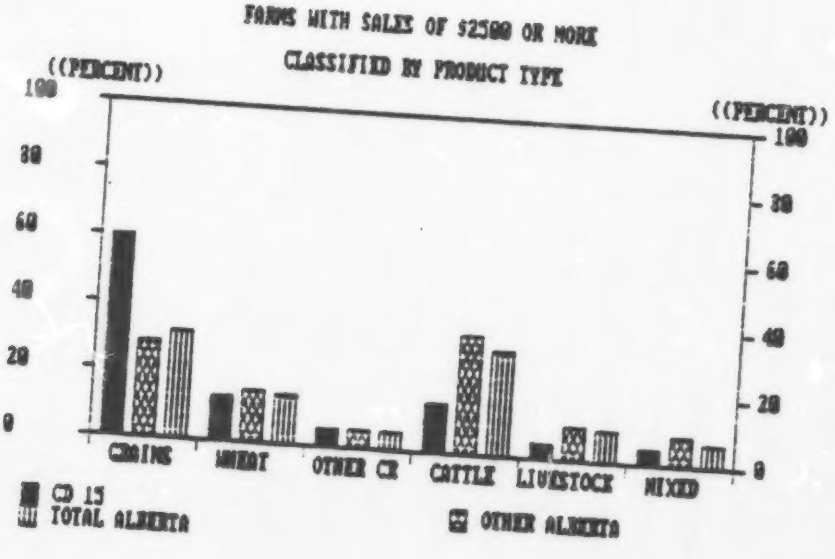
Statistics Canada, op.cit., p.p. 14-1 to 14-4.

Alberta Agriculture, op. cit., p.p. 133 and 140.



FARMS WITH SALES OF $2500 OR MORE

CLASSIFIED BY PRODUCT TYPE



FARMS WITH SALES OF $2500 OR MORE

CLASSIFIED BY PRODUCT TYPE

TABLE (A.3.2.1)-6

AVERAGE FARM CAPITAL, 1981

	LAND AND BUILDINGS	MACHINE AND EQUIPMENT	LIVESTOCK AND POULTRY	TOTAL
I.D. #16	230,376	48,603	14,247	295,623
I.D. #22	222,988	57,032	9,075	289,095
I.D. #23	221,313	61,299	5,753	288,365
C.D. #15	294,108	66,270	13,310	373,707
Other Alberta	552,783	76,602	48,058	677,442
Total Alberta	516,073	75,138	43,126	634,338

Source :

(1) Alberta Agriculture, op.cit., p p. 183 and 189.

TABLE (A.3.2.1)-7

OFF-FARM WORK BY FARM OPERATORS, 1980

DAYS	ID #16 (VALLEYVIEW)		ID #22 (MANNING)		ID #23 (FT. VERMILION)		CD #15 (N.W. ALBERTA)		OTHER ALBERTA		TOTAL ALBERTA	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1 - 48	60	11	79	17	64	17	693	15	3,326	17	4,019	17
49 - 126	125	23	165	35	127	34	1,316	29	3,839	20	5,155	21
127 - 156	46	8	24	5	30	8	320	7	1,158	6	1,478	6
157 - 228	120	22	83	18	74	20	908	20	4,507	23	5,415	22
229 - 365	203	37	130	28	75	20	1,279	28	674	35	8,020	33
Average for Farms Reporting[1] (days)	185		136		120		142		164		156	
Farms Reporting	554		471		370		4,516		19,511		24,087	
Percent of Total Farms	65%		58%		64%		56%		39%		41%	

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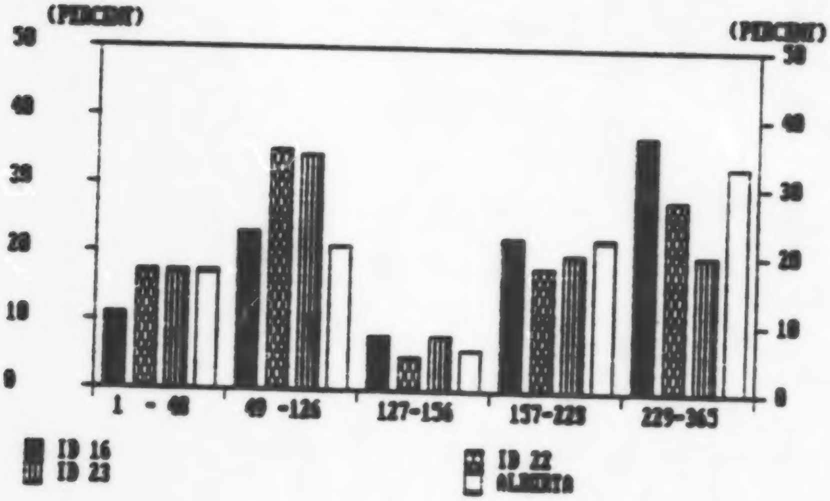
[1] Estimated by utilizing a middle value for the range of off-farm days indicated above.

Sources:

(1) Statistics Canada, op.cit., p p. 26-1 to 26-4.

(2) Alberta Agriculture, op.cit., pp. 148 and 154

OFF FARM WORK BY FARM OPERATORS



OFF FARM WORK BY FARM OPERATORS

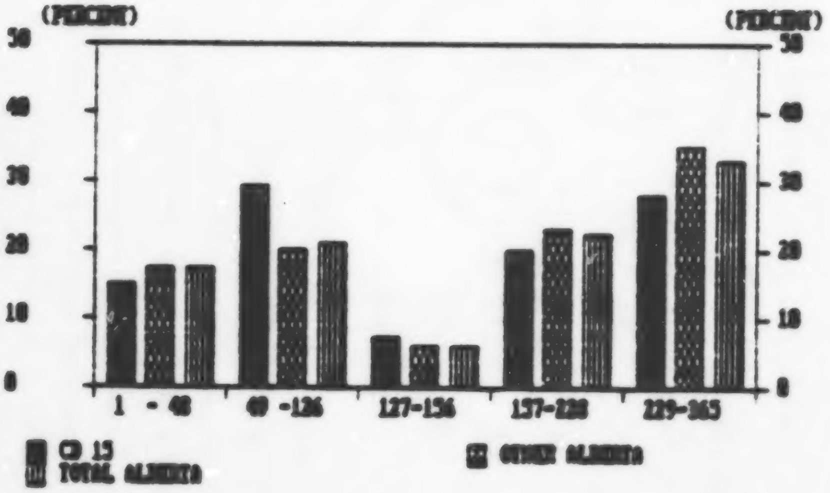


TABLE (A.3.2.1)-8
SELECTED FARM EXPENDITURES, 1980[1]

ITEM	ID #16 (VALLEYVIEW)	ID #22 (MANNING)	ID #23 (FT. VERMILION)	CD #15 (N.W. ALBERTA)	OTHER ALBERTA	TOTAL ALBERTA
Average Land Rental Costs/ Acres Rented	$ 4.95 (29.6)	5.52 (31.1)	4.71 (20.9)	7.10 (33.1)	10.25 (43.9)	9.97 (42.3)
Average Cash Wages/Farm Reporting	$1,122 (21.1)	2,609 (26.5)	2,910 (19.7)	4,087 (25.4)	7,272 (38.8)	6,897 (30.9)
Average Cost of Feed & Supplements[2]	$2,530 (46.5)	1,356 (35.6)	937 (46.9)	2,518 (39.0)	10,317 (63.5)	9,598 (60.0)
Average Cost of Seed/Acre Cropped[2]	$ 3.62 (56.5)	2.74 (65.3)	3.19 (74.2)	3.15 (63.6)	4.10 (56.2)	4.01 (57.2)
Average Cost of Fertilizer & Lime /Acre Cropped[2]	$10.66 (44.5)	13.15 (58.4)	9.50 (54.7)	11.69 (60.1)	10.81 (59.8)	10.08 (59.8)
Average Cost of Chemicals/ Acre Cropped[2]	$ 4.35 (34.0)	3.71 (46.4)	2.96 (45.5)	4.37 (50.4)	6.42 (57.2)	6.12 (56.3)
Average Machinery Rental & Custom Costs/Improved Acre[2]	$ 6.50 (39.1)	3.63 (33.4)	6.08 (47.1)	5.25 (36.4)	4.96 (38.4)	5.01 (38.1)
Average Fuel/Oil Costs/ Improved Acre[2]	$ 7.45 (91.2)	6.84 (95.4)	7.72 (93.6)	6.94 (93.0)	6.99 (92.1)	6.99 (92.2)
Average Machinery Repair & Maintenance Costs/Improved Acre[2]	$ 8.42 (88.8)	6.05 (91.6)	5.77 (90.7)	6.86 (89.5)	7.11 (89.0)	7.08 (89.0)
Average Bldg. Repair & Maintenance Costs/Improved Acre[2]	$ 3.06 (62.7)	1.93 (66.6)	2.19 (59.7)	2.22 (64.4)	2.94 (75.8)	2.86 (74.2)
Average Electrical Costs/ Farm Reporting	$ 677 (80.3)	770 (80.9)	666 (80.0)	605 (80.2)	867 (84.1)	834 (83.6)

[1] Percentage of farmers reporting indicated in brackets.

[2] for farms reporting.

Basic Sources:

(1) Statistics Canada, op.cit., various pages.

(2) Alberta Agriculture, op.cit., various pages.

APPENDIX A.3.2.2

FARM ORGANIZATIONS REPRESENTATIVES INTERVIEWED

FARM "ORGANIZATIONS"
PEOPLE INTERVIEWED/JULY 1983

1. Mr. Rick Klippenstein
District Agriculturalist
Ft. Vermilion, Alberta

2. Mr. Darryl Wells
Assistant D.A.
Ft. Vermilion, Alberta

3. Mr. Ray M. Maubert
Assistant D.A.
Provincial Building
Peace River, Alberta TOH 2X0
Phone: 624-6205

4. Mr. Harry Reinder
NFU Regional Director
Box 64
Deadwood, Alberta
Phone: 836-2534

5. Mr. Albert W. Pimm
Regional UNIFARM and
Alta. Cattle Commission Representative
Box 747
Grimshaw, Alberta
Phone: 338-2271

6. Mr. Dan Muhlbach
Alberta Wheat Pool Representative
Box 96
Peace River, Alberta TOH 2X0
Phone: 624-1209

7. Mr. Con Kosiorek
UFA Representative and
Alberta Wheat Pool Delegate
Hotchkiss, Alberta

8. Ms. Charlene Sandul
Loans Officer, ADC
Box 19, Provincial Building
Peace River, Alberta TOH 2X0
Phone: 624-6170

9. Mr. Floyd Falcon
Credit Advisor
Farm Credit Corporation
P.O. Box 425
Peace River, Alberta TOH 2X0
Phone: 624-2716

10. Mr. C.K. (Keith) Sheehan
    Alberta Hail & Crop Insurance Corporation
    Box 1188
    Fairview, Alberta T0H 1L0
    Phone: 835-2703

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BRIEF INTERVIEWS

1. Ms. Anne Vos
   D.A.
   Manning-Keg River

2. Mr. Fred deMille
   D.A.
   Peace River

3. Mr. Harvey Glazier
   Fairview, Alberta
   (more extensive)

Woods Gordon

APPENDIX A.3.3.1

HISTORICAL OVERVIEW OF LAND DEVELOPMENT IN NORTHWESTERN ALBERTA

HISTORICAL OVERVIEW OF LAND DEVELOPMENT IN NORTHWESTERN ALBERTA[1]

The settlement of Northern Alberta for the purposes of agricultural expansion has, in many ways, been a direct result of the policies implemented by both federal and provincial governments regarding land use. Prior to 1870 there were relatively few regulations placed upon land use. Prior to 1870 there were relatively few regulations placed upon land use, especially in the west. This, however, was due mainly to the fact that outside of a few missionaries, trappers and the indigenous peoples, few people occupied the land and fewer still were engaged in any agricultural activities.

The first of many agricultural activities in Alberta began in 1779 at a small mission situated along the Athabasca River floodplain. It was here that the first successful crops of barley and potatoes were harvested in Northern Alberta. Wheat was also tried at the time, but due to its relatively late maturing rate it was unsuccessful. It was not until the introduction of Red Fife in the 1870's that wheat became a viable crop in Northern Alberta.

Previous to 1930 crown lands were administered by the federal government under the Homestead Act which was initially implemented in 1870. Under the Homestead Act of 1870 prospective farmers were to be provided with a quarter section of land simply by filing an entry and paying a ten dollar fee.

Though the land was available the real rush for acquisition did not occur until the completion of the Canadian Pacific Railroad. With the completion of the CPR the majority of the province was rapidly settled. However, it was not until the establishment of branch lines into the Peace Region in 1912 that the same could be said of the Peace River area. Population figures indicate that the railroad was indeed the major impetus to agricultural settlement, for in 1911 the total population of the Peace Region was about 2,000 and by 1930 stood at approximately 60,000.

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1. This part of the Report was prepared by Alberta Energy and Natural Resources.

Even before the thrust of branch-lines into the Peace Region, however, agricultural activity in the Peace River/Grande Prairie areas had developed to the point that grain mills had been put into operation. By 1905 an established settlement consisting of mixed farming operations was already underway in the Fort Vermilion area.

The South Peace region was given an added population boost when in 1916 the Edmonton, Dunvegan and B.C. Railway provided another means by which settlers could arrive.

It is surprising to note that of all the available homestead land in the prairie provinces in 1928, 45.1% of all land actually filed on was from the Grande Prairie/Peace River regions, making it by far the most sought after agricultural land in Western Canada. Undoubtedly by this time though the majority of the readily accessible and productive land in other areas had already been settled.

The great depression of the 1930's became the vehicle by which the long established settlement policies were to be changed. The great drought that struck the prairie farmers in the '30's left in its passing wake a land of poverty stricken and helpless farmers trying to eke out an existence on land that would only produce in times of plentiful rainfall. This fact brought to the attention of the government that the then policy of allowing indiscriminate settlement was not favourable to either farmer or land, and the multitude of ailures during the depression confirmed this fact. The Federal Government relinquished this problem into the hands of the Provincial Government in 1930 when the Alberta Provincial Government gained direct control over its natural resources under the jurisdiction of the Provincial Lands Act. Under this new policy unplanned settlement and indiscriminate homesteading that did not consider the productive capability of the soil were avoided.

By 1939 the policy of granting homesteads was abandoned and instead 20 year leases, with an option to purchase after ten years, became the means by which agricultural land was to be made available. Before any leasing was allowed, however, the land was first inspected as to soils and topography by the Department of Lands and Mines. Land was not to be opened for agricultural settlement only in blocks and only those quarters that were at least 50% suitable for production were to be made available.

The depression brought further political change, this time in the form of the Special Areas Act and the establishment of Special Areas Act and the establishment of Special Areas in 1939. This program was initiated to enable a successful rehabilitation of farms that were situated in an area of drought. Under the program it was the responsibility of the Department of Lands and Mines to bring the land under its administration and to proceed with rehabilitation as it saw fit.

The agricultural lease regulations that had come into effect in 1939 were again changed in 1948 and implemented as the Homestead Lease Regulations. Under this new program a farmer was now able to purchase lease land after five years rather than the previous residency requirement of 10 years. This land was generally made available to the homesteader at a cost of $1.00 for the first quarter section and $1.25 per acre for acreage beyond 160 acres.

The year 1948 also saw the establishment of Forest Reserves and the Green Area. Under this plan about two thirds of the provinces available lands were withdrawn from all agricultural activities, except grazing, while retaining the forestland as a multiple use area. As a result of data from surveys and inspection it was then determined which land had potentially productive soils. These lands were withdrawn from the Green Area and made available for agricultural and homestead leases.

In March of 1949 what had previously been the Provincial Lands Act was superseded by the Public Lands Act which has to the present remained the governing legislation of public land use in Alberta. The first amendment to these regulations came about in 1957 with the homestead sale policy in which three quarters could now be purchased, without the previously required residency clause. A common means of land disposition at this time was the public auction in which the desired land to be made available was purchased by the highest bidder. There was no residency requirement.

Though the majority of farmers, in order to make their farms viable producing units, had to depend to a large extent on off-farm income, through the 1960's there was still a remarkable rush for homestead land in the Peace River Region. In what was probably a partial attempt to slow the tide of demand for homestead leases, the Provincial Government in 1964 provided a legislative change that resulted in the dropping of homestead lease and the addition of a residency clause to homestead sales. By 1965 the Public Lands Act was further updated to allow the farmer to obtain a maximum of four quarters from the previous total of three. Various means were used to determine the recipients of these homesteads. The most common method was the unconditional draw system, if there was more than one applicant before a certain date, or on a first come first served basis.

The Farm and Rural Adjustment Regulations which were implemented in 1968 provided the government with greater flexibility in its disposition of public lands under the homestead sale policy. Under this program local areas were to set up Farm Adjustment Committees consisting of locally elected members. The purpose of the committees was to make recommendations on the awarding, renewal and cancellation of dispositions on public lands. These Farm Adjustment Committees were active until 1972 when the still operative Agricultural Development Committees were established. The new committee differed from the earlier in that they were set up on a membership appointed basis and now no longer handled all disposition activities but merely made recommendations in the appeal process.

In 1967 the Agricultural Rehabilitation and Development Act set up under the jurisdiction of the Federal Government, in cooperation with the

Provincial Government, was introduced into the Peace River Region. The thrust of the program was to buy certain farms which were obviously uneconomical operations and make that land available to established farmers who had the desire to expand and consolidate their own operations. In order to allow for the continuation of this program in the Peace River Region, homestead leasing and the sale of public land by auction were discontinued in August 1967.

The Farm Development, Consolidation and Enlargement Regulations of the Public Lands Act that became legislation in 1973 was an effort to make more land available more easily. Through these regulations public lands were now made available as farm development leases, leases with an option to purchase and leases for lands that were unsuitable for sale.

As the 1970's progressed policy changes no longer allowed for the awarding of land in areas that were not serviced. The implementation of this pre-service concept, which is still operative in the disposition process, necessitated that roads be built previous to opening the land and making it available for disposition.

The most recent governmental thrust regarding land use has been the 1981 Department of Energy and Natural Resources policy to accelerate the sale and disposition of public land. The pre-service concept, the accelerated land sale program and integrated resource planning are the major determinants of which lands will be posted to meet this new governmental target for agricultural expansion in the Peace River Region.

Woods Gordon

APPENDIX A.3.3.2

CROWN LAND DISPOSITION PROCESS: INTERVIEWEES

LIST OF INTERVIEWEES

AFTER-POSTING PROCESS

King Northcott	Head, Farmland Dispositions Section
Gerry Graw	Regional Supervisor, Public Lands Disposition Branch
Al Menice	Farmer (Chairman, A.D.C.), High Prairie
Bill Fedeyko	Farmer (Chairman, A.D.C.), High Prairie
Dale Smith	District Public Lands Officer (Valleyview)
Dale Zobell	District Agriculturalist (Valleyview)
Fred De Mille	District Agriculturalist (Peace River)
Richard Klippenstein	District Agriculturalist (Fort Vermillion)

Woods Gordon

APPENDIX A.3.3.3

THE CROWN LAND DISPOSITION PROCESS: INTERVIEW GUIDELINES

LAND DISPOSITION SYSTEM
INTERVIEW GUIDELINES

AFTER-POSTING REVIEW

1. Describe The After-Posting Process. (Sequence of activities, roles, timelines, etc.)

2. How do applicants find out about the full after-posting process? (e.g. is it in The Posting Notice?)

3. Strengths/Weaknesses (alternatives used, examples)

   (a) Timelines (30 day period following which lands remain open)

   (b) Posting Notice (all landowners within a 2 mile radius: all names on file dating back 10 years)
   [example]

   (in case of new survey, all landowners within a 10 mile radius are sent a posting notice)
   [example]

   (c) Application (made at sub-agencies, field offices, fieldman or mail)
   [example]

   (d) General Awarding of Public Land (based on need which includes, farming experience, managerial ability, resources available or potential for raising same: awarding made by ENR based on recommendation of fieldman - judgement recommendation)
   [example of reports - what criteria used, consistency, etc.]

(e) Priority in Awarding of Public Land (use following priorities? If not, how decide if 2 individuals have equal need?)

- Established local farmers in need of more land to create an economically viable unit.
- Sons of local farmers who wish to become primarily engaged in farming and who often are promised assistance from their father.
- Non-local farmers who may be re-establishing themselves.
- Other Albertans desiring to make farming a way of life.
- Other Canadians desiring to make farming a way of life.

(f) Appeal Process (30 days to appeal)

(appeal placed before local Agricultural Development Committee - advisory to the Department)

(ENR makes the final decision - who approves; is full documentation sent to the applicants)

4. Is the same process and degree of detail employed for all types of land dispositions?

	Process		Degree Detail	
Grazing Lease	Yes ___	No ___	Yes ___	No ___
Farm Development Lease with No Option	Yes ___	No ___	Yes ___	No ___
Farm Development Lease with Conversion Privileges	Yes ___	No ___	Yes ___	No ___
Farm Development Lease with No Option to Purchase	Yes ___	No ___	Yes ___	No ___
Farm Development Sale	Yes ___	No ___	Yes ___	No ___
Homestead Sale	Yes ___	No ___	Yes ___	No ___

If no, describe.

APPENDIX A.3.3.4

CROWN LAND DISPOSITION PROCESS: APPLICATION FORM

Page 1 LA [illegible]

Alberta
ENERGY AND
NATURAL RESOURCES

APPLICATION

Date of Application ________________

FARM DEVELOPMENT SALE ☐

FARM DEVELOPMENT LEASE ☐

FARM DEVELOPMENT LEASE (with option to buy) ☐

HOMESTEAD SALE ☐

CULTIVATION PERMIT ☐

An applicant for a Lease or a contract leading to title must be a Canadian Citizen or a Canadian Corporation

If the applicant or the spouse owns land, the combined area of the land applied for as a homestead sale and the land owned shall not exceed four quarter sections. The land applied for as a homestead sale must be within a ten mile radius of all land owned.

NOTE: Fees and rental deposits are shown on back of this page.

Mr
Miss
Mrs ________________ of ________________
Print Name Clearly Address

hereby apply for the following lands Phone No. ________________
(Please state exchange or town)

qtr	section	township	range	meridian	cultivated area

Other improvements on the land are:

PERMIT APPLICANTS TO COMPLETE FOLLOWING

[illegible]	area to be grazed	area in summerfallow last year	area to be in summerfallow this year	area to be in summerfallow next year

and or my spouse control the following lands by title or by an agreement leading to title.

qtr	section	township	range	meridian	Total Area	Cultivated Area	Raw land, but suitable for cultivation

and or my spouse lease or rent the following lands, privately or from Energy and Natural Resources.

qtr	section	township	range	meridian	Total Area	Cultivated Area	Raw land, but suitable for cultivation	Lease Expires (date)

DEPARTMENTAL USE ONLY

Registration

File records

Twp. Reg.

Accounts Branch

Amount:

Code:

Initial:

Receipt No.

Date Receipt Mailed:

Divisional Records

App. No.:

APPLICATION

SCHEDULE

Fees and deposits payable with applications

	Application Fee	Deposit per Quarter Section or Part Thereof	
FARM DEVELOPMENT SALE - - - -	$ 10.00	$ 25.00	
FARM DEVELOPMENT LEASE - - -	10.00	25.00	
FARM DEVELOPMENT LEASE (with option to buy) - - -	20.00	25.00	
CULTIVATION LEASE - - -	10.00	25.00	
CULTIVATION PERMIT - -	2.00	2.00	per acre of cultivation
		.15	per acre of grazing
HOMESTEAD SALE - - -		25.00	

Date of Birth_____ Marital Status_____ Name of Spouse_____

My Main Occupation is_____ I also work at_____ for approx._____ months per year

I have lived in Alberta for a total of_____ months of the three years immediately preceding this application. I presently reside on the following land _____

Are you a permanent or part time employee of the Government, or of the Legislative Assembly, of the Province of Alberta? ☐ Yes ☐ No

In the event of my death, the Department may communicate with _____ of_____

NOTE. The following information is required from anyone applying for land EXCEPT when the application is for a cultivation permit, but all applicants must complete the declaration below

Applicant's income from non-farm sources, per year, is approximately $ _____

Spouse's non-farm income, per year, is approximately $ _____

Applicant's agricultural experience is _____

number of years and type of experience

DEPENDANTS **AGES:**

_____ Daughters _____

_____ Sons _____

_____ Others _____

LIVESTOCK

	One year and over	Under one year
[illegible]		
[illegible]		

	MARKET	BREEDING
[illegible]		
[illegible]		
[illegible]		
[illegible]		

MACHINERY

Other Assets (please list)

BUILDINGS AND FENCING

Buildings including residence

Total Value $_____

Do you have power? _____

Fencing_____ miles _____ acres

Water Supply:

Other Debts (please list)

[illegible] $

[illegible] $

[illegible] $

[illegible] $

NOTE — ON THE BACK OF THIS PAGE PLEASE SHOW YOUR FARMING PLANS.

DECLARATION

_____ of_____ in [illegible] do solemnly declare

[illegible] the applicant named herein

2. That I am a Canadian Citizen.

3. That the information given in this application is true and correct.

Declared before me at the_____

of_____ in the Province of

Alberta this_____ _____ day of_____

19_____

_____
Signature of Applicant

_____
Notary Public, Commissioner for Oaths or Justice of the Peace in and for the Province of Alberta

FOR CORPORATE APPLICANT COMPLETE DECLARATION ON PAGE 4.

IMPORTANT

Please set out here a brief description of your proposed development and operating plan for the next five years (include land applied

DECLARATION

I, ____________________________________ of ______________ ______________
the Province of Alberta do solemnly declare:

1. I am an agent of the applicant corporation.
2. I hold the office of ______________________ in the said corporation and have a personal knowledge of the information given herein.
3. That the applicant is a Canadian Corporation as defined in the Public Lands Act.
4. The information given herein is true and correct.

Declared before me at the ______________________

of ______________________ in the Province of

Alberta this __________ day of ______________

19____.

____
Signature of Applicant

____
Notary Public, Commissioner for Oaths or Justice of the Peace
in and for the Province of Alberta

CANADIAN CORPORATION AS DEFINED BY THE PUBLIC LANDS ACT

Section 21.1 (3) (a) "Canadian corporation" means

(i) in the case of a corporation with share capital, a corporation in which not less than 75 percent of the equity shares are registered in the name of and beneficially owned by

(A) one or more Canadian citizens, or

(B) one or more corporations with share capital, if in each case not less than 75 percent of its equity shares are registered in the name of and beneficially owned by Canadian citizens, or

(C) one or more corporations without share capital if in each case not less than 75 percent of its members are Canadian citizens, or

(D) any combination of persons or corporations referred to in paragraphs (A), (B) and (C),

or

(ii) in the case of a corporation without share capital, a corporation in which not less than 75 percent of the members are Canadian citizens;

(b) "equity share" means any share of any class of shares of a corporation carrying full or limited voting rights and any share of any class of shares of the corporation carrying voting rights by reason of a contingency that has occurred and is continuing.

APPENDIX A.3.4

THE ON-FARM SURVEY:
INTERVIEW GUIDELINES

Woods Gordon

THE DEVELOPMENT OF NEW AGRICULTURAL LAND IN NORTHWESTERN ALBERTA

ON-FARM INTERVIEW GUIDELINES

MARV ANDERSON & ASSOCIATES LIMITED
ECONOMIC CONSULTANTS

THERE ARE EIGHT GENERAL SECTIONS TO THIS QUESTIONNAIRE:

I. GENERAL FARM PROFILE
II. CROPS & LIVESTOCK DATA (1982)
III. INVESTMENT DATA
IV. ANNUAL OPERATING EXPENSES (1982)
V. LAND DEVELOPMENT INFORMATION
VI. FARM YIELDS & REVENUES (1982)
VII. FARM DEMAND FOR LAND
VIII. CROWN LAND MANAGEMENT

WE NEED THE FARMERS' HELP FOR ABOUT ONE HOUR. IT IS IMPOSSIBLE TO COMPLETE THIS QUESTIONNAIRE WITHOUT THEIR PATIENCE AND COOPERATION.

PLEASE REFER TO THE PRESS RELEASE AND LETTERS FROM MR. NORM WEISS AND WOODS-GORDON TO EXPLAIN WHY THIS COOPERATION IS SO NECESSARY.

ALSO NOTE THAT THE FARMER MAY HAVE ALREADY COMPLETED A MAIL-OUT QUESTIONNAIRE WHICH CONTAINED SEVERAL VERY SIMILAR QUESTIONS. THIS DUPLICATION IS NECESSARY FOR VERIFICATION PURPOSES.

THANK YOU.

MARV ANDERSON

27/6/83

REGION

FARM NUMBER

FARM SITE LOCATION *

I. GENERAL PROFILE

1. NUMBER OF YEARS AT PRESENT LOCATION: (years)

2. AGE OF FARM: (years)

3. AGE OF OPERATOR: (years)

4. SIZE OF FARM: (acres)

	Owned	Leased **	Total
Cultivated			
Unimproved			
Total			

5. TOTAL FAMILY OFF-FARM INCOME (1982): $

6. DISTANCE FROM PRINCIPAL GRAIN DELIVERY POINT: (miles)

7. A. GENERAL QUALITY OF LAND:***

Good ☐ Average ☐ Poor ☐

B. GENERAL QUALITY OF CLIMATE:***

Good ☐ Average ☐ Poor ☐

---

* Section, township & range. (Just verify this from your own list.)

** Leased from others.

*** Relative to the rest of the Study Region.

II. CROPS & LIVESTOCK (1982):

8. AREA IN FIELD CROPS AND SUMMERFALLOW IN 1982: (Acres)

GRAINS:
Hard spring wheat
Utility wheat
Oats
Barley
Mixed grains
Fall rye

OILSEEDS:
Rapeseed (Canola)
Flaxseed
Mustard seed

HAY & FODDER CROPS:
Alfalfa or alfalfa mixture
Other tame hay
Oats for greenfeed, hay or silage

FORAGE; OTHER SEED: (Please specify)

SUMMERFALLOW

TOTAL CULTIVATED *

9. TOTAL LIVESTOCK AND POULTRY ON FARM, MID-1982: (Number)

CATTLE AND CALVES
Feeders
Other

HOGS

SHEEP

POULTRY:
Laying hens
Broilers
Other

HORSES

BEES

OTHER

*Note to interviewer: This should agree with the total on page 1.

III. INVESTMENT DATA: *

10. LIST OF ASSETS: (Nearest $1,000)

Cash, bonds, savings
Accounts receivable
Feed and Supplies
Crops for sale (grain storage)
Market and replacement livestock
Breeding livestock
Farm power machinery (with motor)
Other farm machinery and equipment
Quota
Farm land owned
Farm buildings (Incl. livestock facilities)
Other
TOTAL

11. DEBT OUTSTANDING: (Nearest $1,000)

	1982 PAYMENTS			TOTAL YEARS PAYABLE**
	PRINCIPAL	INTEREST	TOTAL	
Farm Credit Corp.				
Ag. Development Corp.				
***Banks - FIL's				
***Banks - non-FIL's				
Family				
Non-related Indiv.				
Supply Cos. (eg. fert.)				
Other: (specify) ______				
TOTAL				

---

*Note to interviewer: This information will be treated as very confidential. But don't be too insistent. Just get what the respondent feels comfortable giving you.

**Should include short term operating capital for less than one year.

***Banks include all loans to chartered banks, credit unions, Treasury Branches, and trust companies.

IV. ANNUAL OPERATING EXPENSES (1982):

13. LIST OF OPERATING EXPENSES, 1982:	$*
Fuel, oil and lubricants	
Fertilizer	
Lime	
Chemicals	
Rentals (land or buildings)	
Cash wages	
Feed and supplements (incl hay)	
Seed and seedlings	
Repairs and maint. to farm mach.	
Crop insurance	
Other insurance	
Electricity	
Natural gas	
Telephone	
Other (specify)	
TOTAL	

14. AREA FERTILIZED, LIMED, AND SPRAYED: (total acres in 1982)

Fertilized	
Limed	
Sprayed	

*Note to interviewer: It would be best to get this from the farmers' 1982 Income Tax Return.

V. LAND DEVELOPMENT INFORMATION

15. CUSTOM COSTS OF CLEARING & BREAKING IN REGION ($1982/acre):

YEAR 1:	Brushing & piling	
	Plowing (80%)	
YEAR 2:	Repiling	
	Plowing (20%)	
	Discing 2X	
	Raking (Drum rate) 1X	
	Raking (Wheel rate) 2X	
	Discing 2X	
TOTAL/ACRE		

16. PROBABLE AMOUNT OF CUSTOM WORK IF YOU WERE TO DO SOME CLEARING AND BREAKING:

	CUSTOM	SELF	TOTAL
YEAR 1			100%
YEAR 2			100%

17. REALISTICALLY, HOW LONG WOULD IT TAKE:

A. TO GET ANOTHER FULL QUARTER SECTION INTO PRODUCTION? Yrs.

B. TO GET TOP YIELDS COMPARABLE TO THOSE ON THE REST OF YOUR FARM? Yrs.

18. WHAT CROPS DO YOU USUALLY GROW ON "NEW" LANDS (less than 6 yrs.)?

Wheat	
Barley/Oats	
Oilseed	
Forages	
Other	
TOTAL	100%

VI. FARM YIELDS & REVENUES (1982):

19. RANGE OF CROP YIELDS:

A. "OLD" LAND (more than 6 yrs.)

Crop	1982	Average*	BEST* CROP	WORST* CROP
Wheat (bus./acre)				
Oats (bus./acre)				
Barley (bus./acre)				
Rapeseed (bus./acre)				
Alfalfa (tons/acre)				
Other:				

B. "NEW LAND (less than 6 yrs.)

Crop	1982	Average*	BEST* CROP	WORST* CROP
Wheat (bus./acre)				
Oats (bus./acre)				
Barley (bus./acre)				
Rapeseed (bu./acre)				
Alfalfa (tons/acre)				
Other:				

20. DAILY RATES-OF-GAIN: (lbs./day)

Feeders	
Hogs	
Sheep	
Broilers	
Other	

21. TOTAL FARM REVENUE, 1982: ($)

Crops	
Livestock	
Poultry	
Other	
TOTAL	

* Estimate for last 5 years.

22. INVENTORY CHANGES IN 1982:

	INCREASE	DECREASE
Grain (bushels)		
Livestock (head)		

23. GENERAL FARM OPERATING CHARACTERISTICS (check ✓)

	NO NEVER	VERY LITTLE	SOME	A GREAT AMOUNT/ ALWAYS
A. Uses registered/certified seed				
B. Rotates his crops				
C. Is reducing his summerfallow acreage				
D. Is reducing the number of pre-seeding field operations				
E. Contracts grain sales to rape-crushers or other off-Board buyers				
F. Buys fertilizer, chemicals, etc. during the off-season				
G. Applies fertilizer or herbicides in the fall				
H. (Other notes) ______________				
______________________________				

VII. FARM DEMAND FOR LAND

24. ESTIMATED MARKET PRICE OF LOCAL LAND (1982):

DEVELOPED:	Good	$ /acre
	Average	$ /acre
	Poor	$ /acre
UNDEVELOPED:	Good	$ /acre
	Average	$ /acre
	Poor	$ /acre

25. A. DOYOU WANT TO PURCHASE MORE LAND?

☐ Yes ☐ No

B. IF "YES",HOW MUCH AND APPROXIMATELY WHEN?

1983-1986	acres
1987-1991	
After 1991	

C. IF "YES",WHAT KIND OF LAND WOULD YOU PREFER? (check ✓)

	Good	Average	Poor
Developed			
Undeveloped			

D. IF "YES", WHAT WOULD YOU USE IT FOR?

☐ Grain ☐ Forage ☐ Pasture

26. A. DO ANY MEMBERS OF YOUR FAMILY CURRENTLY LIVING WITH YOU, WHO PRESENTLY DO NOT OWN THEIR OWN FARM, WANT LAND FOR FARMING? *

☐ Yes ☐ No

B. IF "YES, HOW MANY?

☐ (number)

C. IF "YES, PLEASE ESTIMATE WHEN THEY WILL NEED THIS LAND AND HOW MUCH THEY WILL REQUIRE:

Family Member 1

1983-1986	1987-1991	After 1991
acres	acres	acres

Family Member 2

1983-1986	1987-1991	After 1991
acres	acres	acres

Family Member 3

1983-1986	1987-1991	After 1991
acres	acres	acres

Any Others
(Please total)

1983-1986	1987-1991	After 1991
acres	acres	acres

* Note to interviewer: This should be realistic. For example, if the farmer wants them to take up farming but he still isn't sure that they will, the answer should be "no".

VIII. CROWN LAND MANAGEMENT

27.A.HAVE YOU EVER ACQUIRED CROWN LAND? (Check ✓)

Yes ☐ No ☐

B. IF "YES", WHAT, IN YOUR OPINION, ARE ITS STRONG POINTS? AND WHAT ARE ITS SHORTCOMINGS? (check ✓)

	YOUR LEVEL OF SATISFACTION		
	High	Medium	Low
The Process (e.g. the way notice was given, the time taken, the appeal process, etc.)			
Factors for Approval of the Applications (e.g. must be a local farmer, must demonstrate financial security, must demonstrate farming ability, etc.)			
Cost of purchasing land			
Amount of land			
Location of land			
Other (please specify) ____________________			

Comments ____

____

____

☐ No opinion

THAT'S IT! MANY, MANY THANKS.

MSA

SECTION 4.1

THE FARMER - FINANCIAL CONSIDERATIONS

SECTION 4.1
THE FARMER - FINANCIAL CONSIDERATIONS

INTRODUCTION

In the context of this Report, a farm financial analysis serves four principal purposes:

- It can possibly help to illustrate how the demand for agricultural land in Northwestern Alberta is so bouyant (so relatively high); how the vision, the dream of still owning and operating your own farm can still prevail - even with the generally depressed economic conditions which prevail in the agricultural industry in 1983.
- It can help to illustrate how the dynamics of developing a farm really work in 1983 and beyond.
- It can help the layman relate to the real dollars and cents of farming (e.g. current dollars, prevailing interest rates, actual cash flows).
- It helps circumvent much of the complex methodology which underlies an economic benefit-cost analysis, again assisting the layman to better understand the issues at hand.[1]

4.1.1 UNDERLYING METHODOLOGY

A farm financial analysis closely parallels an economic analysis (see elsewhere in this Report) except that (1) all values are taken at market prices (ignoring inflation), (2) taxes are treated as costs and subsidies as income, and (3) interest on the repayment of borrowed money is a cost.

Labour and management must also be paid, whereas equity does not, since this can be taken in the form of real capital gains (historically, about 5% annually). At any rate, the residual is all payable to the farm family, however allocated.

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[1] For a critical overview of benefit-cost analysis and our general approach in this study, see Appendix A.4.

This allows us to develop the following accounting procedure:

	Gross Revenue
less	Production Costs
less	Loan Repayments
less	Depreciation
plus/minus	Subsidies and Taxes
less	Return to Labour and Management
equals	Residual

If the residual is negative, this indicates how much external supplementary financing is required, whether this is from off-farm employment (after taxes), a rich relative, or whatever. If the residual is positive over an extended period of time, we then have what agriculturalists would call a "viable farm unit". The farmer can then be a full-time farmer on a farm which is self-supporting. This essentially means that the farmer would then be getting some cash return on his equity, aside from his return to labour and management. This would then translate into a higher consumption level and/or additional investment and growth.

4.1.2 AVERAGE FARM FINANCIAL STATUS

From existing farm survey data (Section 3.4), cost data tabulated elsewhere in this report[1] and current commodity prices, the apparent financial status of an average farm in the study area (obtaining average yields for typical crops) was simulated to first illustrate how the agricultural industry in Northwestern Alberta is most likely coping with the generally depressed economic conditions which presently prevail in the agricultural industry and elsewhere in the province.

---

[1] See especially Table 8, Appendix A.3.2.

TABLE 4.1.1

FINANCIAL STATUS OF SMALL AND LARGE EXISTING FARMERS WITH CURRENT COMMODITY PRICES, TYPICAL PRODUCTION COSTS AND AVERAGE YEILDS (a)

	Item	Zone 1		Zone 2		Zone 3		Zone 4		ALL ZONES	
		S	L	S	L	S	L	S	L	S	L
	Cultivated Acres (b)	242	1,085	300	484	457	954	265	636	294	748
	Average Gross Revenue (c)	19,829	88,905	24,616	39,713	39,456	85,265	29,294	70,306	26,670	67,854
less	Cash Production Costs (d)	13,639	61,148	14,756	23,806	21,763	45,431	16,053	38,526	15,902	40,686
equals	Farm Revenue Over Cash Costs	6,190	27,757	9,860	15,907	17,693	39,834	13,241	31,780	10,678	27,168
less	Debt Repayment/Taxes (e)	1,618	5,026	4,515	3,280	7,064	10,418	1,730	4,541	3,744	6,100
equals	Short-Term "Disposable" Income	4,572	22,731	5,346	12,627	10,629	29,416	11,511	27,239	6,934	21,068
less	Depreciation (d)	4,735	17,903	3,960	19,854	2,407	14,380	4,464	10,717	4,139	14,384
equals	Long-Term "Disposable" Income	(163)	4,828	1,385	(7,227)	8,222	15,036	7,047	16,522	2,795	6,684
less	Labour/Management Costs (f)	4,840	21,700	6,000	9,680	9,140	19,080	5,300	12,720	5,800	14,960
equals	Return to Equity	(5,003)	(16,872)	(4,615)	(16,907)	(918)	(4,044)	1,747	3,802	(3,085)	(8,276)
	Rate of Return to Equity (g)	neg.	neg.	neg.	neg.	neg.	neg.	1%	1%	neg.	neg.
or:	Short-Term "Disposable" Income	4,572	22,731	5,346	12,627	10,629	29,416	11,511	27,239	6,934	21,068
plus	Off-Farm Income	24,948	4,143	13,242	7,110	23,800	14,117	14,937	10,719	16,538	10,246
equals	Available Family Income	29,520	26,874	18,587	19,737	34,429	43,533	26,448	37,958	23,472	31,313

(a) S = farms with a reported gross farm revenue in 1982 of less than $10,000/annum. L = farms with a reported gross farm revenue in 1982 of more than $10,000/annum.

(b) Includes 2/3 of leased land.

(c) Calculated directly from accompanying Table 2. Inflated to include non-crop agricultural activities. Inflation factor:

Zone 1	1.205
Zone 2	1.124
Zone 3	1.136
Zone 4	1.176
TOTAL	1.163

Also calculated on the basis of an average crop mix for the respective zones.

(d) Basic data taken directly from the economic cost calculations tabulated elsewhere in this report. Also inflated to include non-crop activities.

(e) Long and intermediate term debt. (Short-term debt costs included under production costs.) Assumed terms are 10%/year for 20 years and 12%/year for 5 years, respectively. Taxes = $1.00/cultivated acre owned.

(f) Based on approximately 1 1/3 hours/year per cultivated acre at a wage rate of $15 per hour, i.e. $20/acre.

(g) The ratio of Return to Equity/Net Equity.

Basic Source: MAA/WG on-farm survey information, July 1983.

Table 4.1.1 suggests that the answer to this inquiry, for the average farmer (whether large or small), is "with some difficulty". For the entire study region, the return to equity, labour and management on small farms (with about 300 cultivated acres) would likely be about $2,800 per annum. Temporarily ignoring depreciation raises this total to, say, $6,900. And then drawing on off-farm income sources, the small farmer could probably secure a depositable net income of, say, $20,000 per year.

For the larger farmer (averaging 748 cultivated acres), the situation is probably somewhat better, but not a lot better. His average return to equity, labour and management is estimated to be about $6,700 per annum or, by temporarily ignoring depreciation, say, $21,000 per annum. Supplementary off-farm income helps increase this total to a maximum of, say, $30,000 per year.

Supplementary calculations (Table 4.1.3) suggest that, given the existing cost structure, farm revenues should really be about 45 percent higher.

In the long-run, this does not, in general, characterize a "viable" industry. Even with an average debt-equity ratio of only 19 percent (the provincial average is 10-12%), these "average" farmers are not presently breaking even. Their actual cash return to equity is, on average, negative.

One would reasonably expect that these economic conditions would presently tend to exert considerable downward pressure on any desire by existing farmers to buy more land and to some extent, this is probably true. But these "average" conditions also help to disguise where the existing farm demand for more agriculture land is probably coming from: "above-average" farmers or potential farmers.[1] In addition, and aside from all the non-economic reasons for wanting land, it is widely held that the

---

[1] This was not specifically addressed in the farm survey.

TABLE 4.1.2

PROJECTED AVERAGE FINANCIAL GROSS REVENUE PER CULTIVATED ACRE FOR COMMODITY PRICES IN 1983-84

	Wheat		Oats		Barley		Canola		Hay and Forage		Other Crops	WEIGHTED AVERAGE(d) REVENUE
Zone	Yield(a)	Revenue(b)	Yield	Revenue	Yield	Revenue	Yield	Revenue	Yield	Revenue	Revenue(c)	
1	29	116	55	55	46	92	19	133	1.3	65	92	68
2	26	104	53	53	35	70	20	140	1.6	80	89	73
3	29	116	63	63	43	86	17	119	1.8	90	95	76
4	34	136	70	70	46	92	18	126	1.9	95	104	94
All	30	120	62	62	43	86	18	126	1.6	80	95	78

(a) Respective yields for all grains and oil seeds expressed in terms of bushels per acre per year. Hay and forage yields expressed in terms of tons per acre per year.

(b) All revenue estimates expressed in terms of dollars per acre per year.

(c) A simple average of the five specified crops.

(d) Also considers summerfallow.

depressed market conditions typical of late 1983 could greatly improve in the years ahead.

4.1.3 ABOVE-AVERAGE FARMERS

Clearly, however, even if the "average" farmer (and there is really no such person) is not presently breaking even, one would still expect that some farmers would be "making money", even with the extremely low commodity prices which presently prevail. And this relative prosperity (in conjunction with non-economic forces) is where the real existing farmer demand for land is probably concentrated.

The professional agriculturalist's refrain that "good management is the key" can be clearly illustrated by simulating how a good farm operator's costs and revenues would most likely deviate from those of the "average" farmer, given the identical cost and price structure considered in the preceding.

For illustrative purposes, the following adjustments are considered typical of "above-average" farmers"

- His yields typically exceed the regional average by 10 percent per year.[1]
- His yields are generally more stable, such that his yield variability on the downside is approximately halved.[2]
- He farms his land more intensively, e.g. less summerfallow.

---

[1] This has been calculated by looking at typical yield differences between land classes (wheat = 3 bus./acre, barley = 4 bus./acre, and canola = 2 bus./acre) and then equating this to the widely-held proposition that a good farmer on "poor" land can do as well as a bad farmer on "good" land. For estimated land class yield differentials, see: Hanus, F., Farming Potential of the Jean D'Or Prairie Area; An Economic Assessment, Technical Report RE-11-13-81, Alberta Agriculture, Edmonton, December 1981.

[2] A relatively low proportion of financially secure good farmers purchase All-Risk Crop Insurance because he rarely has farm-wide yields which are less than 60-70% of average.

TABLE 4.1.3

CALCULATION OF APPARENT GROSS REVENUE SHORTFALL, ALL ZONES (a)

	Item	Small Farm (294 acres)	Large Farm (748 acres)	All Farms (583 acres)
	Cash Production Costs	15,992	40,686	31,711
plus	Debt Repayment and Taxes	3,744	6,100	5,381
plus	Depreciation	4,139	14,384	11,743
plus	Labour/Management	5,880	14,960	11,660
plus	Return to Equity (5%)	8,598	22,839	17,703
equals	Gross Revenue - Required	38,353	98,969	78,198
	- Actual	26,670	67,854	54,000
	Ratio of Required/Actual Gross Revenue	1.44	1.46	1.45

(a) Farm size refers to cultivated acreage.

The revenue implications of these rather modest differences in operating characteristics can then be traced by simulating the change in the average revenue per cultivated acre which would be expected (Table 4.1.4).

TABLE 4.1.4

GROSS REVENUE ADJUSTMENTS PER CULTIVATED ACRE TO TYPIFY AN ABOVE-AVERAGE FARMER OVER A FIVE YEAR PERIOD

($/acre/year)

Year	Average Farmer (1)	+	Yields Increase 10% (2)	+	Downward Yield Variability is Approx. Halved (3)	+	More Intensive Land Use (no Summerfallow (4)
1	82		90		90		109
2	91		100		100		121
3	38		42		65		79
4	114		125		125		152
5	65		72		79		96
AVERAGE	78		86		92		112

(1) From Table 4.1.5 following.

The last column in Table 4.1.4 represents the cumulative adjustment to crop yields that a good manager might achieve. On average, the "bonus" per cultivated acre could amount to $34/acre/year, about 44 percent more than an "average" farmer generates.

At the same time, there are some costs involved. More intensive land use (i.e. no summerfallow) would probably increase production costs by about $9.17/acre/year while depreciation would be expected to jump about $2.16/acre/year.

TABLE 4.1.5

PROJECTED FINANCIAL GROSS REVENUE FOR AN AVERAGE FARMER PER CULTIVATED ACRE FOR FIVE YEARS SUBJECT TO TYPICAL YIELD FLUCTUATIONS IN THE STUDY AREA, ALL ZONES (a)

Year (b)	Wheat (16.3%)		Oats (2.3%)		Barley (18.9%)		Canola (13.8%)		Hay/Forage (17.2%)		Other (c) Crops (10.2%)	WEIGHTED AVERAGE REVENUE (d)
	Yield	Revenue	Yield	Revenue	Yield	Revenue	Yield	Revenue	Yield	Revenue	Revenue	
1	32	128	64	64	49	98	18	126	1.6	80	99	82
2	35	140	72	72	49	98	21	147	1.9	95	110	91
3	13	52	31	31	20	40	8	56	1.0	50	46	38
4	45	180	91	91	60	120	28	196	2.2	110	139	114
5	25	100	52	52	37	74	15	105	1.3	65	79	65
AVERAGE	30	120	62	62	43	86	18	126	1.6	90	95	78

(a) The product prices assumed are: wheat = $4.00/bus.; oats = $1/bus.; barley = $2.00/bus.; canola = $7.00/bus.; hay and forage = $50/tonne.

(b) This sequence can be repeated indefinitely.

(c) A simple average of the other five crops.

(d) Also considers summerfallow.

The net effect, however, is clearly illustrated for the case of the above average farmer in a typical year, with 583 cultivated acres in the study area:

	Adjusted Revenues	$75,939
less	Adjusted Production Costs	37,665
less	Debt Repayment/Taxes	5,381
less	Adjusted Depreciation	12,143
less	Labour/Management	11,660
equals	Cash Return to Equity	$ 9,090

The positive cash return to equity represents a rate-of-return of about 2.6 percent per year, an amount which can be utilized for either additional consumption or additional investment, most likely in ongoing farming operations. This amount is over-and-above any real capital gain which might also arise because land prices rise faster than the general rate of inflation. Thus, a farmer in this position would probably be a full-time farmer; he would not necessarily require off-farm employment to further develop or maintain a viable farm unit.

In addition, it is most likely that an already established farmer would also have a lower-than-average debt-equity ratio. This would further augment his cash return to equity, relative to an "average" farmer and/or a beginning farmer with an initially high debt load.

Moreover, if and when commodity prices strengthen (as they surely will), this will obviously help all farmers immensely. But even if this situation arises, the already established above-average farmer will still benefit relatively more from improved market conditions than will an average or below-average farmer.

In short, these calculations (however imperfect) tend to highlight some of the unique characteristics of the farming industry in the Northwest (and, indeed, all of Alberta) today:

1. Margins are narrow with respect to almost any agricultural enterprise in Northwestern Alberta and elsewhere. There is very little "room" for error. Good management is critical.
2. Narrow margins also imply a need for large scale farming. For example, a return to labour and management of $20/acre (as above) implies a need for 1,000 cultivated acres to secure a return to labour and management of $20,000/annum.
3. In turn, this requirement to be relatively larger (before you can afford to be a full-time farmer) has two additional ramifications: the farm operation must be relatively capital intensive and, thus from a purely financial perspective, entry into the industry is relatively difficult because of the cost of capital.
4. In a volatile economy with a fluctuating nominal cost of capital, financial liquidity is crucial. Existing farmers tend to have a relatively low debt/equity ratio because of inflated equity values, particularly during the last decade. They bought "cheap" and accidentally rode the crest of an inflationary economy to achieve financial security. But this further inhibits future land transfers.
5. Under these circumstances, entry is also restricted because of a structural peculiarity in the farming industry. A return to equity largely arises through non-liquid capital gains in real land values (if at all). The nominal annual cash return to equity is very low. (The historical average for the industry is about 5%.) This severely restricts a farmer's loan repayment capacity unless he is either willing to reduce his level of consumption, or he can secure funding from external sources (e.g. off-farm employment, the inherited family farm). This is particularly true when relatively high nominal rates of interest prevail in an inflationary economy.

All of which underlines two principal points:

- Good management is critical. Farming is a profession. It takes years of training and experience in a particular farming area to be an "above-average" farmer.
- Constantly changing economic and technological conditions (which have persistently squeezed margins) have generally tended to

encourage existing farmers to increase their land base if they wanted to remain viable.[1] Prevailing economic and technological conditions are especially adverse for the "beginner farmer".

In an economic context, this is the bottom line. Numerous other socio-political objectives might, of course, also be considered in the agricultural land development and policy-making process.

4.1.4 THE BEGINNER FARMER

Finally, it is useful to simulate the financial picture of an "above-average" beginner farmer who wants to develop 1,000 cultivated acres of new land[2] over a 30 year period. Two cases will be considered:

I. A one-time purchase and land development scenario

OR

II. An incremental farm development scenario with land purchases sequenced as follows:

Year	Purchaser	Cumulative Total
1	320 acres (1/2 sections)	320
6	320 acres	640
11	320 acres	960
16	320 acres	1,280
21	320 acres	1,600

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1. And, on occasion, this has also been reinforced by institutional factors (e.g. the acreage-based quota system for marketing grains).

2. Here, as elsewhere in this Report, it is assumed that the land is 50% #3 and 50% #4 (C and D).

Case I: (One-Time Undeveloped Land Purchase)

To acquire public land from the Public Lands Division for homesteading, the purchaser is required to pay at least 10 percent of the purchase price. The remainder is payable over a 20 year period, at a set rate of 6 percent per annum. During the first three years, only the principal is payable. The total estimated cost is based on $80/acre.

Land development costs, involving the clearing of tree cover, breaking and raking of roots, can be financed under the "Beginning Farmers" loan program of the Agricultural Development Corporation. At present, the loan rate for this type of land development is set at 12 percent per annum, amortized for 30 years, with a five year renewal clause. During the initial five year period, there is a 6 percent interest rebate for qualifying beginning farmers. In this case, the total estimated cost is $150/cultivated acre.[1]

The Agricultural Development Corporation also makes loans for building acquisitions, including the residence of the farm operator and his family. For those operators who qualify under the "Beginning Farmers" loan program, the funds at 12 percent are extended for a period up to 30 years. Also, there is a 6 percent interest rebate available for the initial five year period. The amount of down-payment may be as low as 10 percent of the value of buildings. The cost of buildings is about $44/cultivated acre.

There are also loan programs available for the acquisition of farm machinery through the Agricultural Development Corporation. For qualifying beginning farmers, the terms of loans include 25 percent down-

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[1] The total estimated cost of custom clearing and breaking is $200/acre. In this example, it is assumed that the beginning farmer contributes $50/acre of "free" labour.

TABLE 4.1.6

FINANCIAL SIMULATION FOR AN ABOVE-AVERAGE BEGINNING FARMER

WITH PREVAILING COMMODITY PRICES (1,000 Cultivated acres/1,600 total acres)

	CAPITAL COSTS (Loans)										
Year	Land	Clearing	Machinery	Bldgs.	Production Costs (d)	(d) Depreciation	Taxes	Total Costs	Total (d) Revenue	(b) Difference	External (c) Funding Requirements
1	12,800	—	—	—	—			12,800	—	(12,800)	32,800
2	3,840	15,000	37,500	4,400	—	—	1,600	62,340	—	(62,340)	82,340
3	3,840	9,174	13,275	2,691	64,721	24,225	↓	119,526	107,752(a)	(11,774)	31,774
4	3,840	9,174	13,275	2,691	↓	↓	↓	119,526	126,651(e)	7,125	12,875
5	9,743	9,174	13,275	2,691	↓	↓	↓	125,429	87,283(e)	(38,146)	58,146
6	↓	9,174	13,275	2,691	↓	↓	↓	125,429	176,776	51,347	(31,347)
7	↓	9,174	13,275	2,691	↓	↓	↓	125,429	111,648	(13,781)	33,781
8	↓	17,274	20,025	5,067	↓	↓	↓	142,655	126,767	(15,888)	35,888
9	↓	↓	↓	↓	↓	↓	↓	↓	140,723	(1,932)	21,932
10	↓	↓	↓	↓	↓	↓	↓	↓	91,877	(50,788)	70,778
11	↓	↓	↓	↓	↓	↓	↓	↓	176,776	34,121	(14,121)
12	↓	↓	↓	↓	↓	↓	↓	↓	111,648	(31,007)	51,007
13	↓	↓	↓	↓	↓	↓	↓	↓	126,767	(15,888)	35,888
14	↓	↓	↓	↓	↓	↓	↓	↓	140,723	(1,932)	21,932
15	↓	↓	↓	↓	↓	↓	↓	↓	91,877	(50,778)	70,778
16	↓	↓	↓	↓	↓	↓	↓	↓	176,776	34,121	(14,121)
17	↓	↓	↓	↓	↓	↓	↓	↓	111,648	(31,007)	51,007
18	↓	↓	↓	↓	↓	↓	↓	↓	126,767	(15,888)	35,888
19	↓	↓	↓	↓	↓	↓	↓	↓	140,723	(1,932)	21,932
20	↓	↓	↓	↓	↓	↓	↓	↓	91,877	(50,788)	70,778
21	9,743	↓	↓	↓	↓	↓	↓	142,655	176,776	34,121	(14,121)
22		↓	↓	↓	↓	↓	↓	132,912	111,648	(21,264)	41,264
23		↓	↓	↓	↓	↓	↓	↓	126,767	(6,145)	26,145
24		↓	↓	↓	↓	↓	↓	↓	140,723	7,811	12,189
25		↓	↓	↓	↓	↓	↓	↓	91,877	(41,035)	61,036
26		↓	↓	↓	↓	↓	↓	↓	176,776	43,664	(23,864)
27		↓	↓	↓	↓	↓	↓	↓	111,648	(21,264)	41,264
28		↓	↓	↓	↓	↓	↓	↓	126,767	(6,145)	26,145
29		↓	↓	↓	↓	↓	↓	↓	140,723	7,811	12,189
30		↓	↓	↓	↓	↓	↓	↓	91,877	(41,035)	61,036
31		↓	↓	↓	↓	↓	↓	↓	176,776	43,864	(23,864)
32		17,274	↓	↓	↓	↓	↓	132,912	111,648	(21,264)	41,264
33		—	20,025	50,676	64,721	24,225	1,600	115,638	126,767	11,129	8,871
34–∞ (average) infinity								115,638	130,256	14,618	5,382

(a) No income tax on farm-generated revenues. Land tax = $1.00/acre.

(b) The return to labour, management and equity.

(c) All required down-payments on loans *plus* the amount required to provide for a living allowance of $20,000 per annum.

(d) From Table 4, Column 4. Inflated 16% to include other farming activities.

(e) 85, 90 and 95% of yields after two years.

payment, 12 percent interest loans for 10 years. These estimated costs amount to about $150 per cultivated acre and financing at the same rates after the ADC loan has expired is assured, using the salvage value of the old machinery as a 25% down payment.

All annual costs, as well as the simulated revenue stream, are tabulated in accompanying Table 4.1.6.

The results (Table 4.1.6) are not surprising. Even with various capital subsidies (interest rebates) which initially give the beginner farmer considerable protection, the development of a viable farm unit is difficult with prevailing commodity prices. It takes:

- good management (especially in "bad" years)
- substantial external capital
- a lot of hard work

The amount of external capital required over a 33 year period amounts to approximately:

Farm Investment	$289,487
Living Allowance	660,000
TOTAL	$949,487

Say $1 million dollars. This averages (aside from the initial, $120,000 requirement) about $25,000 per annum. In effect, this means that a first generation farmer would be a "part-time" farmer for virtually his entire working life, i.e. 33 years. But on the other side of the coin, we can expect this same farmer to have, after 33 years, a net asset position approximately as follows:

Land (5% real increase/annum)	$2,145,073
Machinery (80%)	120,000
Buildings	44,000
TOTAL	$2,309,073

He could then either retire and "live like a king" and/or transfer a very well established farm on to his children. It is often argued that this is what really "keeps farmers going". In truth, this factor, plus the freedom (the opportunity to be your own boss), the challenge, the independence, and various other non-monitary factors all enter into the equation. Regarding the "pure" economics, real commodity prices could (and probably will) improve, and unit costs of production could decline (e.g. via the development of new varieties for the Northwest). In any event, to "live poor and die rich" is not novel to the farming community. Nor, all things considered, is this in any way irrational. It all depends on a persons' individual time preference: high investment levels vs. low consumption levels or vice-versa. By and large, a "real" farmer must (and will) defer a high consumption standard for a high investment level.

With this philosophy, it is very hard to convince a potential "beginner farmer" that an opportunity to develop Crown Land would "sentence him to 30 years of hard labour". (Paraphrasing an established farmer in the region.)

Case II: (Gradual Undeveloped Land Purchases)

In this Case, we will more realistically assume that an above-average beginning farmer purchases undeveloped half-section parcels of five year intervals:

TABLE 4.1.7

FINANCIAL FARM GROWTH SIMULATION FOR AN ABOVE-AVERAGE BEGINNING FARMER

WITH PREVAILING COMMODITY PRICES(Adds one-half section increments at five year intervals.

Ultimate cultivated acreage = 1,000 acres; total acreage = 1,600 acres)

	COSTS						REVENUE						Total Revenue Less Total Costs (a)	External Funding Requirements (b)
Year	1st 320	2nd 320	3rd 320	4th 320	5th 320	Total Costs	1st 320	2nd 320	3rd 320	4th 320	5th 320	Total Revenue		
1	2,560	—	—	—	—	2,560	—	—	—	—	—	—	(2,560)	22,560
2	12,468	—	—	—	—	12,468	—	—	—	—	—	—	(12,468)	32,468
3	23,905	—	—	—	—	23,905	21,550	—	—	—	—	21,550	(2,355)	22,355
4	23,905	—	—	—	—	23,905	25,330	—	—	—	—	25,330	1,425	18,575
5	25,086	—	—	—	—	25,086	17,457	—	—	—	—	17,457	(7,629)	27,629
6	25,086	2,560	—	—	—	27,646	35,355	—	—	—	—	35,355	7,709	12,291
7	25,086	12,468	—	—	—	37,554	22,330	—	—	—	—	22,330	(15,224)	35,224
8	28,531	23,905	—	—	—	52,436	25,353	21,550	—	—	—	46,903	(5,533)	25,533
9	↓	23,905	—	—	—	52,436	28,145	25,331	—	—	—	53,476	1,040	18,960
10	↓	25,086	—	—	—	53,617	18,375	17,456	—	—	—	35,831	(17,786)	37,786
11	↓	25,086	2,560	—	—	56,177	35,355	35,355	—	—	—	70,710	14,533	5,467
12	↓	25,086	12,468	—	—	66,085	22,330	22,330	—	—	—	44,660	(21,425)	41,425
13	↓	28,531	23,905	—	—	80,967	25,353	25,353	21,550	—	—	72,256	(8,711)	28,711
14	↓	↓	23,905	—	—	80,967	28,145	28,145	25,331	—	—	81,621	654	19,346
15	↓	↓	25,086	—	—	82,148	18,375	18,375	17,456	—	—	54,206	(27,942)	47,942
16	↓	↓	25,086	2,560	—	84,708	35,355	35,355	35,355	—	—	106,065	21,357	(1,357)
17	↓	↓	25,086	12,468	—	94,616	22,330	22,330	22,330	—	—	66,990	(27,626)	47,626
18	↓	↓	28,531	23,905	—	109,498	25,353	25,353	25,353	21,550	—	97,609	(11,889)	31,889
19	↓	↓	↓	23,905	—	109,498	28,145	28,145	28,145	25,331	—	109,766	268	19,732
20	↓	↓	↓	25,086	—	110,679	18,375	18,375	18,375	17,456	—	72,581	(38,098)	58,098
21	28,531	↓	↓	25,086	2,560	113,239	35,355	35,355	35,355	35,355	—	141,420	28,181	(8,181)
22	26,582	↓	↓	25,086	12,468	121,198	22,330	22,330	22,330	22,330	—	89,320	(31,878)	51,878
23	↓	↓	↓	28,531	23,905	136,080	25,353	25,353	25,353	25,353	21,550	122,962	(13,118)	33,118
24	↓	↓	↓	↓	23,905	136,080	28,145	28,145	28,145	28,145	25,331	137,911	1,831	18,169
25	↓	↓	↓	↓	25,086	137,261	18,375	18,375	18,375	18,375	17,456	90,956	(46,305)	66,305
26	↓	28,531	↓	↓	25,086	137,261	↓	↓	↓	↓	↓	176,775	39,514	(19,514)
27	↓	26,582	↓	↓	25,086	135,312	↓	↓	↓	↓	↓	111,650	(23,662)	43,662
28	↓	↓	↓	↓	28,531	138,757	↓	↓	↓	↓	↓	126,765	(11,992)	31,992
29	↓	↓	↓	↓	↓	138,757	↓	↓	↓	↓	↓	140,725	1,968	18,032
30	↓	↓	↓	↓	↓	138,757	↓	↓	↓	↓	↓	91,875	(46,882)	66,882
31	↓	↓	28,531	↓	↓	138,757						176,775	38,018	(18,018)
32	26,582	↓	26,582	↓	↓	136,808						111,650	(25,158)	45,158
33	23,128	↓	↓	↓	↓	133,354						126,765	(6,589)	26,589
34	↓	↓	↓	↓	↓	133,354						140,725	7,371	12,629
35	↓	↓	↓	↓	↓	133,354						91,875	(41,479)	61,479
36	↓	↓	↓	28,531	↓	133,354						176,775	43,421	(23,421)
37	↓	26,582	↓	26,582	↓	131,405						111,650	(19,755)	39,755
38	↓	23,128	↓	↓	↓	127,951						126,765	(1,186)	21,186
39	↓	↓	↓	↓	↓	127,951						140,725	12,774	7,226
40	↓	↓	↓	↓	↓	127,951						91,875	(36,076)	56,076
41	↓	↓	↓	↓	28,531	127,951						176,775	48,824	(28,824)
42	↓	↓	26,582	↓	26,582	126,002						111,650	(14,352)	34,352
43	↓	↓	23,128	↓	↓	122,548						126,765	4,217	15,783
44	↓	↓	↓	↓	↓	122,548						140,725	18,177	1,823
45	↓	↓	↓	↓	↓	122,548						91,875	30,673	50,673
46	↓	↓	↓	↓	↓	122,548						176,775	54,227	(34,227)
47	↓	↓	↓	26,582	↓	122,548						111,650	(10,898)	30,898
48	↓	↓	↓	23,128	↓	119,094						126,765	7,671	12,329
49	↓	↓	↓	↓	↓	119,094						140,725	21,631	(1,631)
50	↓	↓	↓	↓	↓	119,094						91,875	(27,219)	47,219
51	↓	↓	↓	↓	↓	119,094						176,775	57,681	(37,681)
52	↓	↓	↓	↓	26,582	119,094						111,650	(7,444)	27,444
53	↓	↓	↓	↓	23,128	115,640						126,765	11,125	8,875
54	23,128	23,128	23,128	23,128	23,128	115,640						130,256	14,616	5,384

(a) The return to labour, management and equity.

(b) Includes all required down-payments on loans plus a living allowance of $20,000/annum.

Year 1	320 acres
6	320 acres
11	320 acres
16	320 acres
21	320 acres
Total	1,600 acres

On each half-section, about 200 acres can be cultivated.

For simplicity, it is also assumed that all credit terms are identical to our previous case (Case I). Furthermore, unit costs are assumed to be constant, irrespective of size. In fact, "average" unit costs are probably too low for very small farmers, and too high for larger farmers. For the purpose of this illustration, however, it is hypothesized that small beginning farmers can reduce unit costs (especially for machinery) by starting with an older, smaller line of equipment while larger farmers will "over-capitalize" to substitute more capital for labour, i.e. increase their leisure time. (And to some extent, at least, this is probably true.)

These assumptions allow us to simply fraction the respective cost and revenue streams developed in Case I and sequence the resulting estimates accordingly. These tabulations are provided in accompanying Table 4.1.7.

Table 4.1.7 generally traces the same basic financial picture: New farm development costs a lot of money and it is not likely that all of this money can be generated from the land itself. The "external" annual funding requirements, even when the required land is acquired over 20 years (with current commodity prices) are considerable - again averaging (as in Table 4.1.6) about $25,000/annum. The principal difference between the immediate versus gradual 1,600 acre farm development is that

TABLE 4.1.8

ANNUAL EXTERNAL FINANCING FOR FARM DEVELOPMENT - CASE II

Year	Average Annual External Financing for: Farm (1)	Average Annual External Financing for: Farm & Cost of Living (2)	Average External Financing (a) as a Percent of Cost of Living (3)
1- 5	$ 4,717	$24,717	125%
6-10	5,959	25,959	130%
11-15	8,578	28,578	143%
16-20	11,198	31,198	156%
21-25	12,258	32,258	161%
26-30	8,211	28,211	141%
31-35	5,567	25,567	128%
36-40	164	20,164	101%
41-45	--	14,761	74%
46-50	--	10,918	55%
51-53	--	(1,362)	(b)
54-	--	5,384	27%

(a) [Column (2)/$20,000] x 100
(b) External financing not required

the gradual farm development does not require any large capital injection in the initial years (recall the need for, say, $120,000, in Case I (Table 4.1.6)). It simply requires $25-30,000 per year until the farm (and equipment, etc.) is paid for. This is necessary to help develop the farm, plus living costs, as illustrated in Table 4.1.8.

In short, as illustrated in our previous Case, even with gradual farm land acquisition, the importance of external funding is abundantly clear. For a beginning farmer with no other source of interest-free funds, off-farm employment for either himself and/or his wife (which nets $25-30,000/year) is probably the only way this capital requirement can be met (conversely, for an established farmer, additional land acquisition can sometimes be "subsidized" by the rest of the farm).

Again, however, some people obviously consider this a good investment, re-calculated approximately as follows:

Annual Cash Income (after tax)	$20,000/yr.
Average Annual Capital Gain (say)	50,000/yr. (1)
Total	$70,000/yr.

And, presently, if the farm stays in the family, this capital gain is never taxed, even when the land is transferred from one generation to another.

In addition, again depending on your philosophy and resulting life-style, numerous other (non-taxable) non-monetary benefits are also part of the "homestead mistique".

In short, Case II again suggests that part of the apparent demand for agricultural land no doubt arises because applicants for Crown Land have

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1. Includes improvements.

little understanding of the financial implications of developing a farm. But there is undoubtedly a substantial very real demand for agricultural land by potential young farmers who do fully understand the financial implications of farming, but who still want to homestead in Northwestern Alberta.

4.1.5 SUMMARY

The principal points are these:

1. An analysis of average farm-financial conditions in the Northwest (whether a large or small farm) suggests that the present financial picture is relatively bleak (as elsewhere).

   This largely arises because of currently depressed product prices and the adverse climatic conditions of 1982. Farmers will generally "survive" by making short-term farm management adjustments and a greater reliance on off-farm income sources.

2. On the other hand, above-average farmers are probably able to prosper in the region even with the depressed product prices which prevail in 1983. This is largely attributable to the attainment of above-average yields (without a corresponding increase in unit costs), less year-to-year yield variability, and a lesser dependence on summerfallow to augment nitrogen levels. This analysis generally reinforces the notion that good farm management under prevailing economic conditions is absolutely essential. A relatively low debt-equity ratio (typical of already established farmers) is equally important when gross income margins unpredictably plummet.

3. For the beginning farmer, even with above-average agronomic practices, the development of a viable commercial farm is a long, ardorous process - particularly if current economic conditions persist. But there is no evidence that the establishment of a viable commercial farm is more difficult in the Northwest than elsewhere. Indeed, the converse is probably true because the initial capital requirements are somewhat lower, particularly when gradual farm development (Case II) is pursued. In any event, substantial off-farm revenue must generally supplement the farm development process. This, historically, has been typical of agricultural development in the Northwest and elsewhere. Changing economic conditions generally only alter the

extent of these required capital transfers. In the final analysis, deferred income and non-monetary considerations become paramount. Thus, short-run financial adversity would probably not have a perceptable impact on the long-run demand for agricultural land in the Northwest. For the farmer-entrepreneur to dream, to understand, and to persevere is to prevail. Hope springs eternal.

SECTION 4.2

POTENTIAL COSTS AND DIRECT REVENUES TO THE PROVINCIAL GOVERNMENT AND OTHER ISSUES RESULTING FROM AGRICULTURAL LAND EXPANSION

SECTION 4.2

POTENTIAL COSTS AND DIRECT REVENUES TO THE PROVINCIAL GOVERNMENT AND OTHER ISSUES RESULTING FROM AGRICULTURAL LAND EXPANSION

4.2.1 PURPOSE

The purpose of this chapter of the Report is twofold:

- to list the costs and direct revenues that are anticipated to directly affect the various Departments of the Alberta Government due to the expansion of agricultural lands
- to itemize those issues and concerns that have a direct bearing on the interpretation of the costs and benefits or which could materially affect the costs and benefits anticipated

4.2.2 APPROACH

The approach used to identify the anticipated costs and direct revenues was through personal interviews with appropriate Alberta Government representatives. A listing of those individuals contacted is presented in Appendix I to this part of the Report.

For all interviews, the general guidelines followed were:

1. Evidence of the past record of costs and direct revenues following the opening of new lands (1971-1983). Efforts were to be made to collect data by date of occurance, and type and degree of cost or direct revenue.
2. Anticipated impacts of significant new lands being developed for agriculture. Efforts were made to collect data by type and degree of cost or direct revenue.

Specifically, guidelines were developed for each Department and agency within the Department as was required.

The intent of using these techniques was not just to have the interviewee 'fill-in-the-blanks'. Rather, since we were dealing with a relatively qualitative area we made efforts to ensure that the data collected and the manner in which it was to be used, met with the acceptance of both the Department representative and the consultant. Therefore, the interview guidelines were not used in a rigid sense, but rather to 'guide' the interview.

It should be noted, that the information contained is as reported to us. We have not interpreted, evaluated or made recommendations regarding this information.

It should also be noted that the costs and direct revenue to the Provincial Government associated with agricultural land expansion only include direct costs and direct revenues. Factors such as taxes have been excluded.

4.2.3 FORMAT

The basic format of this part of the Report is to list the costs and direct revenues by the various Departments interviewed. The data applicable to each Department is sectioned into components:

- introduction - displays general information required for a proper understanding of the data
- costs and direct revenues - lists the various costs and direct revenues anticipated from the expansion of agricultural lands
- issues - an itemization of those factors or that context needed to properly assess the costs and direct revenues or which may materially affect them
- cost and direct revenue calculations

Costs associated with agricultural expansion that are likely to be a result of a transfer of costs from one part of the province to the study area are excluded. This is because these are not true incremental costs to the Provincial Government caused by the expansion. For example, Recreation and Parks offers grants to communities based on a per capita formula. Therefore, although agricultural expansion will bring with it an increase in population and affect the per capita transfer payments in the study area, the transfer payments would then be decreased elsewhere in the province due to the population decrease. The assumption is made that the increase in population resulting from an increase in agricultural land expansion would come from within the province. Given the land disposition criteria, this assumption appears reasonable. The following Provincial Departments are dealt with this way:

- o Recreation and Parks
- o Municipal Affairs
- o Social Services
- o Education

The costs and direct revenues presented in the following tables have been discounted at 5%, 10% and 15% rates.

The only direct revenue identified in the following tables to the Provincial Government is the sale of crown land. If agricultural land is to be opened-up at a rate approximating the demand identified, there will largely be costs to the Provincial Government. The major benefits accrue to other government levels, groups and individuals.

4.2.4 ENERGY AND NATURAL RESOURCES

4.2.4.1 Introduction

This section of the Report documents the results of the interviews with representatives of Alberta Energy and Natural Resources. Specifically, the Divisions included are:

- o Alberta Forest Services
- o Fish and Wildlife Division
- o Resource Evaluation Planning
- o Public Lands Division

4.2.4.2 Alberta Forest Service

Amount of Forest Area

Alberta's forests contain 57,000 million cubic feet of growing stock which ranks fourth among Canadian provinces in terms of both productive forest area and merchantable timber volume. The Peace Region contains approximately 53% of the total provincial forest resource base.

Although Alberta is blessed with a large amount of forested area, much of it does not have the potential to grow a commercial crop of timber. The Canada Land Inventory (CLI) has rated the wood production capability of the forests of Alberta using a decreasing-capability scale ranging from 1 to 7. Generally, lands rated 1 through 5 are considered suitable for sustained economical wood production, while classes 1 to 4 are preferable for puposes of intensive forest management.

It is important to note that there are no class 1 and 2 forest lands in Alberta and that, according to the CLI system, over one third of the forested land is unsuitable for sustained wood production (see Table 4.2.1).

TABLE 4.2.1

CAPABILITY OF FOREST LAND IN ALBERTA (CANADA LAND INVENTORY)

CLI Class	Acreage	Percent of Area
1	0	0.0
2	0	0.0
3	2,259,665	2.6
4	35,459,358	40.8
5	20,076,254	23.1
6 & 7	29,114,914	33.5
Totals	89,910,191	100.0

Productivity of classes in ft.^{3}/acre/year is as follows:

Class 1 = 111+; Class 2 - 90-110; Class 3 = 71-90; Class 4 = 51-90; Class 5 = 31-50; Class 6 = 11-30; Class 7 - 10 or less

TABLE 4.2.2

PEACE RIVER REGION FOREST STATISTICS

FOREST	ANNUAL ALLOWABLE CUT			CURRENT UTILIZATION (in m³ cubic metres)			PERCENT ALLOCATED			SURPLUS TO DEVELOP					
										ACTUAL			PERCENT OF AVAILABLE		
	Coniferous	Deciduous	Total	Coniferous	Deciduous	Total	Coniferous	Deciduous	Total	Coniferous	Deciduous	Total	Coniferous	Deciduous	Total
Footner	1,481,268	2,149,686	3,630,954	495,609	--	459,609	31%	0%	14%	985,659	2,149,686	3,135,345	67%	100%	86%
Grande Prairie	1,594,120	1,875,492	3,469,612	1,593,893	--	1,593,893	100%	0%	46%	227	1,875,492	1,875,719	0%	100%	54%
Peace River	981,509	1,943,941	2,925,450	861,794	--	861,794	88%	0%	29%	119,715	1,943,941	2,063,656	12%	100%	71%
Slave Lake	1,678,466	2,974,733	4,653,199	835,127	568,761	1,403,888	50%	19%	30%	843,339	2,405,972	3,249,311	50%	81%	70%
TOTAL	5,735,363	8,943,852	14,679,215	3,786,423	568,761	4,356,184	66%	6%	30%	1,948,940	8,375,091	10,324,031	34%	94%	70%

The Department of Energy & Natural Resources has stated that approximately 45% of the forested land is currently supporting productive timber stands. Another 19% is potentially productive, covered mostly by willow and alder and has not regenerated to productive forest land. The remaining one-third of the forest land is classified as nonproductive. It is mostly low site, wet muskeg areas that do not have the capability to grow commercial forests unless expensive treatment, such as drainage and fertilization, are applied. Therefore, it would appear that approximately one-third of Alberta's forest land is either not capable of supporting, or is non-productive, as commercial forest.

Although the forest industry in Alberta is fourth among the Canadian provinces it is modest when compared with the other Provinces of British Columbia, Ontario, and Quebec. However, with the projected increase in world demand for wood fiber, Alberta is one of the few places which has a surplus of fiber resources available.

Timber Resources in the Peace Region

The Peace River Region consists of the four large administrative "Forest" areas of:

- Peace River Forest
- Slave Lake Forest
- Grande Prairie Forest
- Footner Lake Forest

Collectively, these Forests are capable of providing approximately 15 million m^3 of timber annually on a perpetual, sustaining level when managed under full production (see Table 4.2.2 opposite).

The table on the page opposite indicates that of the 15 million m^3 total annual allowable cut in the Peace Region, about 6 million (40%) is coniferous timber and the remaining 9 million m^3 (60%) is made up of hardwoods. Approximately 66% of the total coniferous timber volume is being utilized (or is committed for early development), whereas only about 251,388m^3 or 3% of the deciduous is being used for the production of hardwood products.

Forest Utilization

The table presented earlier entitled 'Peace River Region Forest Statistics' indicates the current utilization rate given the technology applied in the Region. A new growth opportunity for Alberta to better utilize the forest reserves lies in the market mechanical and chemi-mechanical pulp process.

This method has until recently not been used extensively. However, there are reasons why the forestry industry is now seriously considering this option:

- o high capital costs and comparatively low return on investment (ROI) from new greenfield kraft mills
- o growing potential for substitution of lower cost pulps (including the increasing market acceptance of high quality-high yield pulps)
- o escalation of kraft pulp production costs due to rising wood costs
- o high yield pulping process require proportionately less water and result in much lower pre-treatment pollutant loads than with bleached draft pulp (BKP) production
- o the capital required for an economically sized high yield thermo-mechanical or chemi-thermomechanical market pulp mill is about 50% of that associated with a newsprint mill and 25% of that needed for a BKP mill
- o new geographical markets and end-uses for paper and paper board are likely to develop in the future. In addition, despite the competitive impact on pulp demand of other materials (e.g. plastics in wraping/packaging) and other technologies (e.g. electronic media), it is projected by the Food and Agriculture Organization of the United Nations, that consumption of paper and paper board products will continue to increase in the major consuming markets already in existence. Canada (and Alberta) is

favorably placed to take full advantage of this export market opportunity.

Trembling aspen is the best hardwood species and white spruce is the best softwood species for the market mechanical and chemi-mechanical pulp process. In order to maximize the possible end uses of the pulp, hardwood and softwood species should be imported at a 50-50 ratio. In the Peace Region, of the 8,943,852 m^3 deciduous annual allowable cut, a majority is hardwood. However, only the Footner and Slave Lake Forests appear to be positioned to take maximum advantage of the growth opportunity from a softwood current utilization rate viewpoint. The other two forests already have a high utilization rate for softwood. This does not mean that the CTMP process cannot be used in these forests - it certainly can. However, since the 50-50 hardwood/softwood ratio would not be present, the end uses of the pulp would be limited thereby increasing the risk of the investment.

The development of CTMP mills is directly related to the market conditions. Should the world market increase as expected, the wood resource available in the Peace Region could present excellent opportunities for development.

Acreage Charges to the Green Area

The Green Area boundary was established in 1948 by Order-In-Council 113/48 to separate the forested area of the Province from the settlement zone. The lands within the Green Area are managed for multiple uses: timber, water production, fish and wildlife, industrial development and grazing. Agriculture development, other than grazing, was to be excluded.

The following Table 4.2.3 indicates the acreage changes that have occured to the Green Area from 1975-81. As can be seen there has been a small net gain in land dedicated to the Green Area.

TABLE 4.2.3

ACREAGE CHANGES TO THE GREEN AREA - 1975/81

YEAR	ACRES	SQUARE MILES
1975/76	-1600	-2.50
1976/77	+22676	+35.40
1977/78	-1760	-2.75
1978/79	+15840	+24.75
1979/80	+51200	+80.00
1980/81	-36,560	-57.13
TOTAL CHANGES	+49,796	+77.77

Reported Benefits and Costs of Developing Land For Agricultural Purposes - Alberta Forest Service

1. Depending on the area that agricultural expansion occurs in, there is the possibility that the reforestation investment made in an area would be lost. There is a tendency for agriculture to expand into areas that have been cut and reforested, since these areas may appear (to non-forest professionals) to have little forestry value. Yet, on a per hectare basis, reforestation now costs (current reforestation practice) $345.00.

   Trees that are young, growing on a 'cut area', do not appear to have any worth in terms of commercial timber. Yet it is these very locations that are critical to the forest industry in terms of its long term survival. Without areas of young trees, that mature to form commercial timber, the security of the forest industry is threatened. Reforestation areas are critical to the forest industry.

   The potential exists to increase production through intensive forest management. Depending on the quality of land, reforestation could increase productivity by 40% - 50% from the existing situation. This increase in productivity, however, would require current reforestation costs to increase by 200% - 300%. The type of increased reforestation practice would include stock planting, weeding programs, thinary, drainage, etc. The use of genetic manipulation is

TABLE 4.2.4

ANNUAL ESTIMATED CURRENT REVENUES

Forest	Timber Dues $	Reforestation Charges $	Holding and Protection Charges $	Total $
Footner Lake	387,000	912,000	79,000	1,378,000
Grande Prairie	811,000	510,000	263,000	1,575,000
Peace River	92,000	219,000	47,000	358,000
Slave Lake	471,000	1,053,000	104,000	1,628,000
TOTAL	$1,761,000	$2,685,000	$493,000	$4,939,000

Source: Alberta Forest Service

technically not far enough advanced to provide a contribution to production yield increases or reduction in life-cycle times.

To maximize the benefits of the intensification of the reforestation practice requires that the land identified as the most productive for timber production be used (although other, less productive land can be used, the gains would be less).

2. Alberta Forest Service provides some extension services to the residents of the Peace Region. Extension services provided include grazing on forest lands, fire prevention, woodlots, commercial timber permits, and others. However, if there were to be more agricultural expansion in the Region, the additional costs associated with an increase in extension services would be minimal.

3. From 1971-1980 there were 230 forest fires directly attributable to the clearing of land in the Peace River Region. These fires caused a loss of 8,281 acres. Losses from 1961-1970 were 341,602 acres caused by 316 fires.

4. The cost for fire prevention of a particular parcel of land being developed varies greatly depending on acres, forest or other cover, the magnitude of the development, the location from existing facilities plus many other variables. However, any increase in agricultural development will result in increased prevention requirements.

5. The estimated current revenues to the Alberta Forest Service is presented on Table 4.2.4 on the page opposite. As can be seen the four forests in the Peace Region earned $4,939,000 for the Government in 1982.

6. The number of Alberta Forest Service staff in the Study Area is not expected to decrease as a result of the expansion of agricultural land into the Green Area primarily due to A.F.S.' roles in the areas of fire protection and forest management (e.g. oil and gas, etc.).

Issues

1. Under the Forests Act - Chapter F-16, Revised Statutes of Alberta, 1980, Sec. 16 - the Minister of Energy and Natural Resources is given the authority to enter into a F.M.A. Memorandum of Agreement. This Agreement provides for the Province to replace land taken out of the F.M.A. by the Province under specific conditions. Generally, under the Agreement, land removed must be replaced by the province elsewhere. However the land replaced need not be adjacent to the F.M.A. nor of equal timber value. Therefore, should agricultural land expansion occur in an F.M.A. area, this may, or may not represent a cost.

2. If agricultural land uses are to consume more of the land base in the Peace Region there is a need to ensure that this occurs in an orderly fashion (as opposed to irregular expansion patterns). Although agricultural expansion will be a cost to the forest industry, orderly expansion would allow the forest industry to better accomodate increased agricultural expansion thereby minimizing costs to the extent possible.

3. If there is to be more agricultural expansion, there should be a woodlot program within the agricultural expansion area. This means that land within the expansion area should be set aside for forestry to (a) meet the local timber demand (e.g. lumber, fence posts, fire wood), (b) ensure the availability of a secondary source of income, recreation areas and wildlife habitat areas.

4. There is the danger that agricultural land expansion will occur in areas that have recently been cut and reforested. These areas may appear to non-forestry industry, to have less value for forestry than more mature areas. However, forestry (deciduous) involves a 60 year life cycle which means as one area is harvested where the trees are 60 years old, (a) there is another area with 50 year old trees which

will soon be at 60 years, (b) there is another area with 40 year old trees which will be 50 and then 60, and so on. The reforestation areas are critical to the long term survival of the forestry industry.

5. From a reforestation viewpoint, forestry is a self-sustaining industry which does not cost the public any direct funds. The industry pays royalties and the costs of reforestation (the latter is unlike Ontario and British Columbia).

6. The Alberta Forestry Industry can better accomodate unimproved than improved grazing, as a multiple-use within forested lands. However, unimproved grazing is not likely to be profitable to the farmer.

7. Historically there has been no impact on the forestry industry as a result of the agricultural expansion. This was because the expansions have largly taken place in the 'Yellow Area' which was not required for the forestry industry.

   There is now the concern however, that more agricultural land expansion may cause a direct impact on the foresty industry since expansion will intrude into the 'Green Area'.

__Cost Calculations__

1. The Alberta Forest Service is responsible for the management of the Green Area of the province. Therefore, as applied to the Study Area, the Service must interact with all the forest users (e.g. fish and wildlife, recreation, oil and gas, mineral exploration, etc.). Since, the role of the Service vis a vis agriculture is relatively small (compared to the other forest users) any expansion of agriculture would only have three major areas of impact as follows:

   o woodlot planning and conservation
   o coordination of the selection of the areas into which the expansion is to occur
   o fire prevention

For the first two activities, the existing staff complement is considered adequate to meet these needs. No data is available, that would allow an assessment of the fire prevention requirements. Given that the Study Area is rated lower than most other areas of the province for fire prevention/protection, indicates that an expansion of agricultural land would not significantly impact on the required staff or equipment allocated to the Study Area.[1]

2. The Alberta Forest Services collects revenue from the forest industry. Given that it is expected that there is likely to be little to no impact on the industry due to the potential agricultural expansion described in this Report, indicates that the revenue collected would also not be affected.

4.2.4.3 Fish and Wildlife

Introduction

This section of the E.N.R. Sector deals with the fisheries industry (commercial and sport) and wildlife (trapping and hunting). Wildlife includes furbearers, ungulates and birdlife.

Cost and Direct Revenue

1. With an increase in agricultural land there comes an increase in population and access to wildlife areas. This in turn yields a need for an increase in the required enforcement of legislation. It is estimated that the existing manpower is insufficient to meet extra enforcement loads.

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1. Source: Personal Communication, M.J. Niederleitner, Energy and Natural Resources, Alberta Forest Service.

Even with more enforcement staff, there would still be an increase in illegal hunting and fishing.

2. An increase in agricultural expansion (in the livestock area) will bring with it an increase in wildlife/domestic livestock encounters. This will result in three separate possible costs:

   (a) There may be a requirement for a wildlife/livestock indemnity fund to financially protect the farmer from loss of livestock.[1] If this is not put in place then the farmers are likely to control the problem themselves in a non-selective manner. This action could seriously affect the viability of a species in the area. The following Table 4.2.5 indicates the current level of problem wildlife activities.

TABLE 4.2.5

PROBLEM WILDLIFE ACTIVITIES (1981-1982)

Type	Peace River Region
Beaver	429
Wolf	73
Bear	381
Ungulates	100

   (b) There is a health/disease transmission problem that could come about through the interaction of domestic livestock and wildlife. The diseases could be transmitted both ways: domestic to wildlife and/or wildlife to domestic. For example, Wood Buffalo National Park is thought to be a tuberculosis, anthrax and brucellosis reservoir. Although the park is currently isolated animals do range outside the park. With significant agricultural expansion in this area, disease transmission may increase.[2]

   (c) In the early 1950's there was an extensive rabies control campaign in northern Alberta. The solution at that time was to poison the coyote, fox and wolf: domestic livestock are continually cared for and monitored in this regard. The

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1. No estimate of the cost of the fund have been prepared. Costs have not been included in the cost calculations for this section of the ENR Sector.

2. No estimates of manpower or protection services are avilable to counteract and/or react to this possibility. Costs have not been included in the cost calculations.

greatest liklihood of the introduction of rabies is through the interaction of domestic livestock and wildlife.[1]

3. A significant increase in agricultural land would directly affect hunting in the Peace Region from two viewpoints:

   (a) There would be an increase in the absolute and relative amount of trespassing on private land to gain access to the game species. This results in costs to the farmer in terms of damage to his land and property by the trespasser. The increase is absolute because the number of farms increase. It is a relative increase because the amount of access points and ease of access increases.

   (b) Those who hunt (either local residents or non-residents) would find that with an increase in the local population and a decrease in wildlife habitat, they will have to travel farther and face more hunters (thereby reducing the success rate). In essence, this means that the hunter will have to pay more to get less.

   This cost also directly affects tourism in the Region. The demand for hunting in the Peace Region is related to the major urban population (i.e. primary Edmonton). The current ratio of local to non-residents is approximately:

   - 3 Edmontonians to 1 local - Peace River area
   - 2 Edmontonians to 1 local - Valleyview area
   - 100% local - High Level area

4. There is a significant deficiency in the available base data to accurately (albeit on a more macro scale) assess the existing fish and wildlife resources of the Region. Therefore, before agriculture is to expand significantly there is a need to increase and fill out the data base.

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[1] No costs are available. Costs have not been included in the cost calculations.

5. An increase in improved access to the area will increase the amount of wildlife lost due to:

   - hunting
   - road kills

   There will also be an increase in both the active and passive harassment of the wildlife which is known to have serious implications on the health and long-term viability of animals.

6. An increase in the disposition of land for agriculture will likely increase activity in the area of multi-agency planning (i.e. integrated land use planning). The Fish and Wildlife Division could not meet this increase with existing manpower. A staff increase similar to that required for enforcement is needed (i.e. two staff man years for each 100,000 acres of land cleared at a cost of approximately $80,000 per year including overhead - less field work and equipment required reduces the costs).

7. An increased population in the area would likely result in the demand for special sport-fishing recreation opportunities such as stocked lakes and access points to streams and rivers that would have to be met. This demand has developed in other areas of the Province before.

8. It is not possible to assess the cost or direct revenue related to the loss of license fees (fishing and hunting) to the Provincial Government due to the expansion of agricultural land. People who buy their license in places other than the Region and fish and/or hunt in the Peace Region are not traced by the Division. Therefore, without a survey of fishermen and hunters the cost or direct revenue is unknown. However, it is reasonable to assume that the cost or direct revenue is likely relatively minor (especially when compared to costs such as road and infrastructure requirements).

TABLE 4.2.6

FUR PRODUCTION AND VALUE OF FUR PELTS - ALBERTA 1960-1982

	Number	($'000)
1960	1 489 375	2 340
1961	1 253 378	1 433
1962	1 532 328	1 524
1963	1 111 496	1 944
1964	799 435	1 864
1965	1 100 448	1 608
1966	806 667	1 761
1967	797 896	1 784
1968	820 704	1 520
1969	646 452	1 996
1970	499 265	1 910
1971	528 015	1 706
1972	593 160	3 760
1973	548 643	6 363
1974	458 785	4 626
1975	660 379	3 330
1976	754 270	5 371
1977	1 035 675	7 225
1978	559 967	6 222
1979	543 203	11 795
1980	1 830 551	15 572
1981	797 833	12 095
1982	423 533	9,774

Source: Resource Evaluation and Planning, Energy and Natural Resources, 1983.

9. There are approximately 2,000 registered trappers in the NADC (no specific numbers for the Peace Region) of which approximately 50% are Natives and 25% make their major summer income from farming. Although agriculture and trapping can co-exist (as indicated by the resident and registered traplines in the Yellow Area) the actual agricultural expansion reduces habitat for furbearers and therefore decreases furbearer production. This in turn could result in the need to cancel some of the existing registered traplines since the entire NADC area has already been totally allocated to registered traplines (i.e. there is no potential for expansion). This would affect the income and perhaps employment of a portion of 2,000 individuals who rely to some extent on trapping for their livelihood.

   There is the possibility that the management of existing traplines could be improved. However, intensification of management would rely to a greater extent on the production of furbearers which, if agricultural expansion were to occur, would decrease. Also, intensification of management has to be done by the trapper himself and cannot be effectively forced on the individual. Intensification of management of traplines would not appear to offset the loss of furbearer production that would be cause by an increase in agricultural land expansion.

10. The number of furbearers trapped per year is extremely variable, affected largely by market conditions and population fluctuations. Fur production and the value of fur pelts from 1960-1982 is presented on Table 4.2.6 on the page opposite.

    The average trapline takes in about $2,500 - $3,000 annually. A few trappers have an income of $40,000 - $50,000 annually directly from trapping.

11. Generally, agricultural areas are attractive to waterfowl. Therefore, expansion of agricultural land would likely attract more waterfowl hunters. This has both costs and benefits. The costs are in terms of the (a) potential problems and damage of hunter access to the lands, and (b) potential crop damage caused by migratory birds. The benefits are primarily directed to the community in terms of hunter expenditures.

12. An increase in agricultural development brings with it significant changes in the landscape that can affect the fisheries industry. These are exemplified as follows:

    - the drainage of wetlands affects ground water, and in turn this alters the waterflow
    - changes in the water regimes and accelerated run-off (especially in the spring) cause siltation and damage to fish habitat
    - road construction, power lines and gas lines which cross streams cause both short-term siltation problems (which can eliminate an age class of fish) and long-term problems in terms of erosion at the point of crossing which yields long-term siltation and fish habitat destruction
    - according to the Federal Fisheries Act all streams must be maintained as they are naturally in-situ. Therefore, any new development must ensure the environs of the stream are maintained which in-turn increases the cost of development to the proponent (e.g. Alberta Transportation, Power Companies, A.G.T., etc.)

13. There are 37 Class A and 274 Class B guides in the Peace River Region. However, it is felt that a significant number from other regions of the Province also use the area. A 1982 survey of Peace River guides suggested a good to excellent future for the industry. The number of guides and activities has been stable and will continue to be.

    It has been estimated that the total annual cumulative value of the guiding industry in the Peace River area alone is about $7.5 million (includes direct and indirect expenditures).

Clearly, since agricultural expansion would reduce the amount for habitat game species, the expansion would cause a direct cost to the guiding industry.

14. Commercial fishing is not expected to be impacted by agricultural expansion in the Peace Region. It is not an important economic activity in the area now.

15. From 1975-1980 the number of sport fishery licenses sold in Alberta increased by 40% to 300,000. The number of fishermen user-days doubled over this same period to 4.5 million.

    Fishing opportunities are not a major attractor of non-residents to the Peace Region. However, what few resource opportunities do exist become very important to the local residents (who make up 80% of the fishermen) primarily because of their scarcity.

Issues

1. With the increase in agricultural expansion, there will be a loss of wildlife habitat areas. The primary ungulates in the Peace Region are the moose and elk which are not compatible with agricultural lands. Other species cannot be introduced to the Region that would be more compatible due to the climatic conditions, and/or predation (e.g. whitetail deer).

2. With the increase in population brought about by the agricultural expansion there may be a need for the Government to use an authorization system for hunting (e.g. anterless elk or antlerless moose). This would reduce the opportunities of the hunter.

3. There is a significant difference between various land areas and features in the Peace Region. For example:

- mineral licks
- nesting sites
- travel corridors
- calving areas

These areas have a high significance to the integrity and viability of the wildlife in the Peace Region.

To ensure that these critical areas are not lost, there is a need to first identify and then preserve these features. The costs of identification were noted in the costs/bènefits section above. The costs of preservation are minimal to the Department.

4. The wildlife's range in the Peace Region is characterized by seasonal 'discontinuity'. This means that the area that is important to them in the summer is different than in the winter. Therefore, the data collection must recognize this. This also impacts on the speed at which land can be opened for agriculture and the need to ensure that both summer and winter habitat is preserved.

5. Any costs of the expansion of agricultural land on the habitat of ungulates is likely to be site specific. Although there is no data available for bear, the maps presented in Appendix A.4.2 indicate the prime moose, elk mule deer and white-tailed deer sensitivity areas, based on the judgement of the Fish and Wildlife Division. As can be seen, these are primarily in the river and stream valleys of the Peace Region.

Cost Calculations

1. There are two staff requirements as they relate to Fish and Wildlife; enforcement officers and biologists. The current ratio of enforcement officers to farmland now in place in the Study Area is acceptable and will be used to assess the future need for officers as agricultural land expands. The current ratio is as follows:

   o 1 enforcement officer/272,000 acres

TABLE 4.2.7

COSTS TO FISH AND WILDLIFE DIVISION (ENERGY AND NATURAL RESOURCES)
AS A RESULT OF AGRICULTURAL LAND EXPANSION IN THE STUDY AREA

1. Input: 154,000 acres given over to agricultural land per year for 20 years.

2. Cost Table

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	50
Acreage	154,000																			→	-	→
Enforcement Officers																						
o Number (Cumulative)	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	10	→
o Cost	.06	.06	.12	.12	.18	.18	.24	.24	.30	.30	.36	.36	.42	.42	.48	.48	.54	.54	.60	.60	.60	→
Biologists																						
o Number (Cumulative)	-	1	1	1	2	2	3	3	3	4	4	5	5	5	6	6	7	7	7	8	8	→
o Cost	-	.05	.05	.05	.10	.10	.15	.15	.15	.20	.20	.25	.25	.25	.30	.30	.35	.35	.35	.40	.40	→
Data Base	$1M	$1M	$1M	-	-																	→
TOTAL	$1.06	$1.11	$1.17	$.17	$.28	$.28	$.39	$.39	$.45	$.50	$.56	$.61	$.67	$.67	$.78	$.78	$.89	$.89	$.95	$1.0	$1.0	→

As applied to the estimated demand figures, this equates to .57 staff/154,000. For the purposes of this Report we will use 1 staff every 2 years for the 20 year expansion period (estimated cost of $60,000/officer including overhead).

The current ratio of existing farmland to biologists in the Study Area is 1/680,000 acres. However, the Fish & Wildlife Division believe this ratio to be too low when considering an accellerated agricultural land expansion program. The ratio recommended by the Fish & Wildlife Division is 1 biologist for every 400,000 acres of new agricultural land. As applied to the demand figure of 154,000 this results in about 1 biologist required every 2.5 years (estimated cost of $50,000 per staff per year including overhead).

2. As noted previously, the existing data base for fish and wildlife is poor and requires improvement if the Fish and Wildlife Division is to be in a position to adequately respond to the increase in agricultural land expansion. The total cost to develop this data base is estimated at $3M.

   Table 4.2.7 on the page opposite displays the costs to the Fish and Wildlife Division.

3. Trapping, although a significant item, is considered to be part of the impact on the provincial economy and therefore is not addressed herein. The same holds true for hunting as a tourism activity.

4.2.4.4 Resource Evaluation and Planning (REAP)

Introduction

The Resource, Evaluation and Planning Section of Energy and Natural Resources is responsible for:

- coordinating the initiation of new, or the upgrading and monitoring of existing, integrated land-use management plans
- all public participation in association with the planning program
- liasing with other Planning Agencies (e.g. Regional Planning Commission)

Costs and Direct Revenues

Staff

At present REAP has more capacity to participate in the preparation of integrated management plans than it's clients (i.e. other Government Departments). Therefore, if there was to be an increase in agricultural land in the Peace Area, any planning staff problems are not likely to be due to a lack of capacity in REAP.

Issues

During the planning exercises that have occured in the Peace Region and the associated public participation, several issues were constantly identified.

1. Many individuals in the Peace Region have a lifestyle and an approach to agriculture which is very different from other parts of the Province. According to these perceptions, the level of service that is now provided does not have to be provided 'up-front'.

   For example, it is not necessary for all the roadway systems to be in place, prior to agricultural development. As long as the essential secondary road is provided the farmers can often provide for a local road system as needed - albeit not to the accepted government standard. Similarly, schools and recreation facilities are not required

TABLE 4.2.8
COSTS TO RESOURCE EVALUATION AND PLANNING (ENERGY AND NATURAL RESOURCES) AS A RESULT OF AGRICULTURAL LAND EXPANSION IN THE STUDY AREA

1. Input: 154,000 acres given over to agricultural land per year for 20 years.

2. Cost Table

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Acreage	154,000 ⟶																			
Data Base Costs																				
o Agriculture	$1M	$1M	$1M	$1M	$1M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o Recreation/Tourism	$1M	$1M	$1M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o Renewable Resource	$1M	$1M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	$3M	$3M	$2M	$1M	$1M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

immediately at the current standard. Correspondence school may be acceptable, as opposed to a high cost fixed facility and school busing systems.

This lifestyle component of the cost/benefit assessment is very important in that, if accurate, it reduces the immediate costs to the Province. Although the costs would have to be eventually made, there may be an opportunity for these costs to lag behind agricultural expansion thereby not restraining the meeting of the demand for the land because of infrastructure costs.

2. There is a requirement for more participation by the community in the decision making process. Most farmers, for example, recognize that they do not have the technical research credentials to comment on that part of the planning exercise. However, they do feel that their expectations, priorities and how to ensure a potentially good future becomes reality are important to the decision making process.

3. There is a definite need for a better data base upon which to assess the resources in the area. Inventories (such as vegetation, fish and wildlife, soils, etc.) are often out-of-date, incomplete or non-existant. Without this data it is not possible to ensure that the best decisions are being made.

Cost Calculations

1. The only costs to REAP would be in the form of the development of a data base. The approximate cost to collect and analyze this data is as follows:

o Agriculture data - $5M
o Recreation/Tourism data - $3M
o Non-Renewable Resources data - $2M

The approximate timing of this expenditure for the data collection is presented on Table 4.2.8 on the page opposite.

TABLE 4.2.9

COSTS AND DIRECT REVENUES TO THE PUBLIC LANDS DIVISION (ENERGY AND NATURAL RESOURCES) AS A RESULT OF AGRICULTURAL LAND EXPANSION IN THE STUDY AREA

1. Input: 154,000 acres given over to agricultural land per year for 20 years.

2. Cost Table

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Acreage	154,000																			→
Staff																				
o Number	2.5																			→
o Cost	$.103M																			→
Consulting Costs	$.154M																			→
Legal Survey Costs	$.770M																			→
Total	$1.02M																			→

3. Benefits Table

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Acreage	154,000																			→
Sale of Lands	$10.78M																			→

4.2.5 PUBLIC LANDS

4.2.5.1 Introduction

Provincial public lands are, in large, managed by the Public Lands Division within the settled areas (white and yellow areas). The Alberta Forest Service manages the land in the Green Area.

In the disposition of public land for agricultural purposes, the Public Lands Division:

(a) cooperates with other government agencies in establishing land use priorities (i.e. to determine if agriculture is the best land use for a particular location)

(b) issues and administers the permits, leases and sales (including legal descriptions, land transfer documentation, surveys, and land appraisals).

It is in these areas of activities that an increase in agricultural land in the Study Area would result in the need for cost increases for the Public Lands Division.

There would also be direct revenues received from the expansion of agricultural land in the form of land sales. These direct revenues are also included in this section of the Report.

4.2.5.2 Cost Calculations (see Table 4.2.9 on the page opposite)

1. It has been estimated by the Public Lands Disposition Branch that four extra staff are required for every 250,000 acres of land given over to agriculture. The average cost of these staff is $41,250 including overhead.

TABLE 4.2.10

SUMMARY OF FARM NUMBERS BY REGION

SOURCE: 1981 CENSUS DATA

Region	No. of D.A. Offices	Total No. of D.A.'s	Total No. of Census Farms	Avg. Farms Per Office	Avg. Farms Per D.A.
I	12	17	8,513	709	501
II	9	13	7,952	884	612
III	11	17	11,455	1,041	674
IV	12	18	9,999	833	555
V	12	19	11,898	992	626
VI	10	17	8,239	823	485

TABLE 4.2.11

SELECTED REGIONAL BREAKDOWN

	No. of D.A. Offices	Total No. of D.A.'s	Farms*	Avg. Farms Per Office	Avg. Farms Per D.A.
Region I	10	17	8,513	709	501

Highest	Vulcan	1 D.A.	820 farmers	820 farmers/D.A.
Lowest	Taber & Vauxhall Sub Office	3 D.A.'s	1,001 farmers	333 farmers/D.A.

*Figures given by Regional Director. Does not include large livestock operations, greenhouses, etc.

	No. of D.A. Offices	Total No. of D.A.'s	Farms*	Avg. Farms Per Office	Avg. Farms Per D.A.
Region III	11	17	11,455	1,041	674

Highest	Sedgewick	1 D.A.	1,059 farmers	1,059 farmers/D.A.
Lowest	+Wetaskiwin	2 D.A.'s	848 farmers	424 farmers/D.A.

*Figures supplied by Regional Director
+Senior D.A. office

	No. of D.A. Offices	Total No. of D.A.'s	Farms*	Avg. Farms Per Office	Avg. Farms Per D.A.
Region VI	10	17	8,239	823	485

Highest	Grande Prairie	2 D.A.'s	1,632 farmers	816 farmers/D.A.
Lowest	Ft. Vermilion	2 D.A.'s	550 farmers	275 farmers/D.A.

Based on these trends and in discussions and correspondence with Alberta Agriculture, it was reported that there would be a requirement for agrologist staff if further agricultural development took place.

No extra staff in the categories of administration, home economists, clerks or predator control officers are expected (current staff in these categries is 39 full-time and 2 part-time).

Agricultural Development Corporation

The Alberta Agricultural Development Corporation is a provincial agency of the Crown which provides financial assistance to primary producers of agricultural products, the owners of associated businesses and agricultural industries.

The function of the Corporation is not to replace other lenders, but to meet the legitimate credit needs of Albertans involved in the agricultural industry, who are unable to borrow from other sources at reasonable terms and conditions. All other sources of credit should be investigated before applying to the Agricultural Development Corporation.

An individual who wishes to apply for a 'Beginning Farmer Loan' is not required to approach other lenders before applying to the Agricultural Development Corporation.

Direct Farm Loan Programs

(a) The Beginning Farmer Loan Program

The Beginning Farmer Loan Program provides short, intermediate and long term loans from the Agricultural Development Corporation's Revolving Fund for the acquisition of land, permanent improvements to land, the construction and/or renovation of farm buildings for productive purposes, livestock purchases, and equipment purchases.

TABLE 4.2.12

BEGINNING FARMER LOANS AUTHORIZATIONS

BY REGION

	1977-78		1978-79		1979-80		1980-81		1981-82		Preliminary 1982-83	
	No.	Million $	No.	Million $	No.	Million $	No.	Million $	No.	Million $	No.	Million $
Province (excluding Peace Region)	41	3.0	103	7.5	210	22.3	860	127.0	1,075	165.0	1,428	150.6
Peace Region	15	1.1	20	1.8	67	6.5	147	18.3	215	28.5	159	19.5
TOTAL	56	4.1	103	9.3	277	28.8	1,007	145.3	1,290	193.5	1,198	170.1

Source: Alberta Agriculture

Individuals who have not operated a viable farm unit, but have an adequate combination of farm experience and education and who have 10% equity by way of cash or kind may apply to the Corporation.

Special terms and conditions are provided for beginning farmers to enable them to form balanced self-sustaining units. These special terms and conditions take the form of almost 100% financing with low interest rates, long terms, possible principal deferments for up to three years if required, and an incentive rebate of 6% on the principal outstanding each year for five years. This incentive rebate is only provided if the applicants meet the objectives of their farm program.

The statistics for the number of loans made and their value for the Peace Region compared to the province in total are presented on Table 4.2.12 on the page opposite. As can be seen, whereas the provincial totals increased from 56 authorizations (valued at $4.1M) in 1977-78 to 1,290 authorizations - 96% (valued at $193.5M - 98%) in 1981-82, the Peace Region figures increased from 15 authorizations (valued at $1.1M) in 1977-78 to 215 authorizations - 93% (valued at $28.5M - 96%) in 1981-82. Therefore, the authorizations increased in the Peace River Region at a marginally slower pace than the provincial average.

In 1981 there were 8,239 farms in Census division 15[1] that averaged 832 acres each.

In 1981-82 there were 215 authorizations valued at $28.5M. Based on these figures the ratio of authorizations and values to farms and acres can be developed as shown on Table 4.2.13 following:

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1. Although the boundary of CD's is not exactly the same as the A.D.C.'s Peace River Region, we believe they are close enough to make the comparison if the results are seen as indications only.

TABLE 4.2.13

		No. of Authorizations	Value of Authorizations
		215	$28.5M
No. of Farms	8,329	38.7 farms/ authorization	$3,421 authorized/ farm
Total Acreage	6.854M	31,879 acres per authorization	$4 authorized/acres in farming

Source: Woods Gordon

Based on these ratios, the impact of agricultural land expansion on the Beginning Farmer Loans can be estimated.

(b) Part A and Part B Direct Farm Loan Program

Part "A" and Part "B" loan applications are considered if the applicant cannot obtain financing with reasonable terms and conditions from other lending sources.

These programs assist primary producers to develop and maintain self-sustaining farms through the provision of long term loans. Loans under both programs are available for the acquisition of land, making permanent improvements to land and buildings and consolidating outstanding liabilities.

For both types of direct farm loan applications normal credit evaluations are carried out, including an evaluation of the proposed enterprise's repayment ability, management ability and the security available.

The maximum direct farm loan available is $200,000.

Both Part A and Part B direct farm loans are made on a five-year renewal basis. As long as the individual is still the owner of the land and A.D.C. has not had to initiate legal action, the loan will be renewed with not more than a 1% change from the previous interest rate.

To qualify for a loan under Part "A" Direct Loan, borrowers must have total proforma assets of less than $450,000 and a proforma net worth of less than $225,000.

The lending rate for Part "A" Direct Farm loans is 3% less than the preferred lending rate for the first five years of the loan. Part "A" Direct Farm loans may also be used for the purchase of renovation of houses and mobile homes (maximum $60,000).

Part "B" Direct Farm loans are made at the Corporation's preferred interest rate and are available to individuals whose assets and net worth exceed Part "A" Direct Farm loan limits. Loans for housing are not available under Part "B" loans.

Agribusiness Loan Programs

The objective of this loan program is to assist new and expanding agri-businesses. By helping to increase the processing of agricultural products and facilitating the provision of agricultural services to primary producers, the Corporation contributes to making Alberta's rural centres more viable.

Agribusinesses enterprises, which process primary products and/or provide a necessary service to farming enterprises and which are unable to obtain reasonable financing from other sources, may apply for assistance under this program. Applicants are expected to contribute adequate equity. Direct term loans are available at A.D.C.'s agribusiness preferred lending rate if alternate financing is not available and if specific guaranteed financing will not satisfy the needs of the applicant.

Direct agribusiness loans are available for the acquisition of buildings, land, equipment and making permanent improvements. Loans for debt consolidation and operating requirements are usually provided by way of specific guarantees. However, in exceptional circumstances, direct agribusiness loans may also be provided for these purposes.

Further help to make rural centres more viable is provided by A.D.C. through the provision of direct term loans at a special interest rate for rural gas cooperatives.

These funds are available only to finance and/or refinance "gas rate" borrowings. Rural gas cooperatives may also apply under the agribusiness loan programs for their other needs.

Guaranteed Loan Programs

(a) Specific Guarantees

The objective of this loan guarantee program is to help primary producers of agricultural products and agribusinesses to attain viability and improve productivity.

A.D.C. provides a 100% guarantee to the selected lender for loans with terms of up to 15 years. These loans bear interest at the lender's prime interest rate plus 1% for up to ten year terms, and plus 1 1/2% for between 10 and 15 year terms.

There is no maximum loan amount stipulated under this program.

Primary producers are required to investigate the use of an Alberta Farm Development Loan (A.F.D.L.) prior to requesting a specific guarantee.

(b) Alberta Farm Development Loans (A.F.D.L.)

The objective of this loan guarantee program is to assist primary producers of agricultural products to maintain or improve productivity and viability by facilitating the securing of short and intermediate term financing through another lender.

Through guarantee agreements with approved lenders, this program assists the primary producer in obtaining financing at preferential interest rates. Loans under this program can be made for any purpose associated with primary production, except for debt consolidation.

The maximum loan available under this program is $100,000 with a term of up to 15 years, depending on the purpose, with the borrower providing 20% equity for the proposal. The interest rate is the lender's prime lending rate plus a maximum of 1% for loans of up to ten years, and prime plus a maximum of 1 1/2% for loans longer than ten years.

(c) Incentive Programs

Under A.F.D.L. or specific guaranteed loans, a number of incentive programs are available to those producers who qualify. Incentive programs currently available include:

- Range and Soil Improvement Incentive Program

  This incentive program is intended to increase farm and ranch income by encouraging the development and improvement of land productivity.

- Sheep Producers' Incentive Program

  The objective of this incentive program is to improve the productivity and viability of the sheep farming industry.

- Vegetable and Potato Storage Program

  This incentive program is designed to assist vegetable and potato producers to improve their productivity and viability.

- Dairy Development Program

  This incentive program was cancelled on April 30, 1982; however, previously approved participants will continue to be eligible for incentive payments until the expiry of their projects.

TABLE 4.2.14

ALBERTA HAIL AND CROP INSURANCE CORPORATION
CUMULATIVE CROP LOSSES BY RISK AREA AND MUNICIPALITY
1965 TO 1982

A) Municipality Peace River	Total Fed. Premium	Total Prov. Premium	Loss	L/P Ratio	Claims Paid
County Grande Prairie	$ 5,570,945	$ 5,570,945	$ 3,261,318	29.27	$ 1,938
M.D. Peace River (CEA)	5,231,243	5,231,243	4,601,999	43.98	1,717
M.D. Smoky River	7,125,960	7,125,960	6,150,384	43.15	1,751
I.D. 16	1,614,802	1,614,802	1,423,998	44.09	785
I.D. 17	3,854,311	3,854,311	4,152,294	53.86	1,319
I.D. 19	2,570,460	2,570,460	2,028,223	39.45	718
I.D. 20	4,701,539	4,701,539	3,593,422	38.21	1,586
I.D. 21	3,649,807	3,649,807	2,842,082	38.93	1,046
I.D. 22	4,157,574	4,157,574	5,625,879	67.66	1,657
I.D. 23	1,896,131	1,896,131	1,600,480	42.20	275
TOTAL	$ 40,372,772	$ 40,372,772	$ 35,280,079	43.69	$12,792
B) Overall Totals For 14 Risk Areas in Province	$285,569,247	$285,569,247	$177,095,707	31.29	$56,082
C) Peace River As Percentage of Totals	14%	14%	20%	--	23%

Note: 1. Preliminary Estimates Only

2. 1981 Basic crop L/P ratio = 30.69% for the Province

Source: Alberta Hail & Crop Insurance Corporation

- Municipal Seed Cleaning Plant Program

  This is a new program of A.D.C. Municipal seed cleaning plants may now apply to the A.D.C. for up to 50% of approved costs.

Canada-Alberta Crop Insurance Program

The Crop insurance program is a plan which offers farmers a guarantee that regardless of the weather, they will receive a minimum return from their insured crops. It is intended to take much of the risk out of farming and to enable the farmer to plan ahead confident that his income in any year will not drop below a certain level. In most cases, the guarantee to an insured is closely related to his costs of production.

The Crop Insurance program provides protection against crop loss caused by all of the natural hazards. An insured farmer is guaranteed a specified number of bushels of a specified grade for each insured crop on the farm unit. If production falls below the insurance coverage, the insured is paid the difference at a pre-selected dollar value per bushel.

The Crop Insurance program also provides protection against hail on a spot-loss basis through an endorsement to the basic policy. Through this endorsement, the insured may receive payment for a loss on any part of each insured crop.

The Government of Canada provides financial assistance to the Canada-Alberta Crop Insurance Program by contributing 50 per cent of the total premium required each year. The Federal government's contribution to this program totalled $33.1 million for 1981. The Government of Alberta contributes all of the administrative costs, plus a premium subsidy in high risk areas, which totalled $4.84 million in 1981.

Table 4.2.14 on the page opposite indicates the cumulative crop losses and claims paid in the Peace River Region from 1965 to 1982. As shown in the 'C' category, although the Peace Region only represents 20% of the total Provincial loss, the claims paid were 23% of the total and the total Federal contribution was only 14%. Also, the loss/provision ratio is significantly higher than the rest of the province. Based on these figures it would appear that increases in agricultural land in the Peace Area would yield a relatively significant impact on the costs of providing the crop insurance program.

Research Requirements

It was reported to us, that the expansion of agricultural land in the Peace Region could be better utilized (in the long run) through research programs specifically designed for adopting crop and livestock to the Region. However, research is a long term activity and impacts in terms of costs and benefits cannot be estimated.

Agricultural Societies

Agricultural societies in Alberta require farmers as its charter membership, plus local non-farmers, for formal registration. There are currently five societies operating in the Study Area. It was reported to us that there would likely not be a need to increase this number.

Agricultural Service Board

Agricultural Service Boards are established to monitor selected factors that affect agriculture such as erosion and weed control. It was reported to us that, because of their monitoring role, the Agricultural Service Board would require minor amounts of additional funding due to agricultural land expansion in the Peace River Region.

Grain Terminals

With an increase in agricultural land there will come an increase in grain production. This increase is likely to require additional grain terminal service. However, the location of the terminal is a source of controversy. It has been reported to us that terminals are not economical and the trend is away from inland terminals. The primary implications appear to be in the area of better transportation to the West Coast terminals.

Training Programs

Training programs require local participation with Alberta Agriculture's administrative support and funding. If the current standard of training is maintained, it was reported to us that the impact of agricultural land expansion on this aspect of Alberta Agriculture, would be minor.

4.2.6.2 Issues

1. The rate at which agricultural expansion occurs is partially dependent on demand, but also is dependent on the available pool of farmer experience. It is assumed that the objective of opening up new agricultural land is to create viable economic employment. This being the case, the rate at which land is cleared for agriculture should be limited by (a) the available farmer experience, (b) resources available, and (c) demonstrated initiative, to ensure as best possible, that the objective will be successfully achieved.

2. The level of service to be provided by the Government should be based on the objectives of the farmer, community and Government. If the objective of the farmer and community is to open-up the land faster and accept a lower lifestyle standard, and the Government's objective is to reduce expenditures, then infrastructure costs (e.g. roads) can be put in place at a lower standard and other costs can be delayed (e.g. recreation facilities) until a certain population threshold is achieved. The objectives and level of service to be provided is extremely important in assessing the rate at which agricultural land is to be opened-up.

3. The rate of agricultural land expansion possible is directly dependent upon the rate at which capital is made available. The slower the rate at which credit is made available (e.g. through the Farm Credit Corporation, commercial institutions, and A.D.C.) the slower the rate at which land can be opened-up.

4. There is a continuum that can be termed 'design with nature - farmers economic viability'. What this means is that when land is opened for agriculture there are opportunities for designing the land-use patterns such that the costs or impacts associated with the expansion are minimized. So for example, the natural drainage flow would not be incumbered, water retention areas would not be drained and converted to agriculture, important habitat areas preserved, etc. At the other end of the continuum, is the need for the land-use pattern to facilitate agricultural production in terms of ensuring that the efficiency of today's modern farming equipment and production processes are maximized.

   There is a need to balance these two aspects. Although it is appropriate to consider savings that can be realized through 'designing with nature', it is inappropriate to (a) spend too much time in the planning, and (b) place too many land design constraints on the farmer. The time factor can be costly if carried to the extreme. Land design constraints are also costly in terms of the efficiency at which the land is farmed and therefore, the ultimate cash-flow to the farmer.

5. The implementation of the expansion of agricultural land is critical in terms of the viability of the land parcels which are disposed. Alberta has experienced situations in which the Provincial Government has had to expend great amounts of funds to consolidate areas that were improperly planned on this basis (e.g. the region in and around Edson).

4.2.6.3 Cost Calculations

1. Assumptions

The number of loans given by A.D.C. through its many programs to farmers in the Study Area will increase with agricultural land expansion. The loans however, are largely recovered by A.D.C. and therefore do not represent a significant cost to the Government.

The only cost is of an 'opportunity' cost nature wherein the funds being loaned to farmers could perhaps recoup larger revenues through higher interest rates if they were applied elsewhere. The identification and assessment of this type of 'opportunity cost' is not within the scope of this Report.

The Hail and Crop Insurance Program has a low level of participation in the Study Area. Therefore, although it was reported to us that there is a premium subsidy transfer to this area of the Province, the order of magnitude is too small to be considered in the analysis.

2. Staff Standards

Staff costs including overhead = $50,000.

3. The Cost Calculations

Four staff (District Agrologists) are required to accommodate the increase in agricultural land expansion. These staff would be required as follows:

o year 1-15:2 staff
o year 15+:2 staff

If there is a requirement for the development of a grain terminal, it would likely not be inland. Therefore, any costs would be related

TABLE 4.2.15

COSTS TO ALBERTA AGRICULTURE
AS A RESULT OF AGRICULTURAL LAND EXPANSION IN THE STUDY AREA

1. Input: 154,000 acres given over to agricultural land per year for 20 years.

2. Cost Table

Year	1	15	20	50
Acreage	154,000 →	→	→	
Staff				
o Number	2 →	4 →	→	→
o Costs	$100,000 →	$200,000 →	→	→

primarily to transportation services, which, due to the Crow Rate debate, is an unknown at this time.

Table 4.2.15 on the page opposite presents the estimated costs to the Agricultural Department due to agricultural land expansion in the Study Area.

4.2.7 RECREATION AND PARKS

4.2.7.1 Grants

(a) Major Cultural Recreation Facility Development Program

This program is designed to construct or improve existing recreational/-cultural facilities. A maximum of 75% of eligible funding can be used for development of recreation facilities with a related minimum of 25% to be used for development of cultural facilities. As well, up to 50% may be used for debt retirement against existing cultural/recreational facilities. A five year Recreational Services Master Plan must be developed incorporating a five year operating budget, capital budget, a source of matching funds, project drawings, site plan, why the project is needed, and any agreements and by-laws.

The Provincial Government funds 50% of the approved project cost to any eligible applicant. The maximum funding limit is $100 per capita. The $100 per capita assistance will be based on the maximum (annual) population of a municipality during the ten year period (1975-84), as released by the Department of Municipal Affairs.

(b) Operational Financial Assistance Program

This program is available to all Alberta municipalities that have a duly established Recreation Board. The program was designed to aid in operation of existing recreation facilities. Applicants need to provide an outline containing a copy of the current programs, a copy of the current approved program, an assessment of last year's program and a copy of last year's audited budget.

Financing is based on $3.00 per capita. There is no specified termination date.

(c) Project Cooperation

The objective of this program is to support and encourage co-operative efforts between municipalities and community organizations in the planning and development of Recreation Programs and Facilities. The program is available to all incorporated municipalities.

The following categories and examples are indicative of the projects that may be planned:

1. Professional plans and specifications of cultural/recreational facilities such as an art gallery or children's playground.
2. Development of a cultural/recreational facility or renovations to existing facilities such as swimming pool enclosure or a craft workshop.
3. The purchase of land for a cultural/recreational facility such as a fitness trail or auditorium.
4. The clearing or preparation of land for the development of a cultural/recreational facility such as an amphitheatre or lawn bowling green.
5. Retirement of capital debt.
6. Purchase of long-term equipment such as ski-tow bar.

Each incorporated municipality is eligible to receive a basic grant of five hundred dollars ($500.00). In the case of an improvement district or special area the basic assistance will be $500.00 per Recreation Board (as recognized by the improvement district or special area) and will be paid directly to the Recreation Board. An additional $1.65 per capita is available, comprised of the following components:

a) Municipal Assistance - $0.50 per capita for each municipality.

b) Community Service Organization - $0.50 per capita to any incorporated community organization, service club, group or agency provided they contribute not less than the amount of the grant.

c) Regional Recreational Incentive - $0.65 per capita is available to municipalities with a population under 15,000 where two or more municipalities agree to pool resources to provide a service or facility, or

Community School Incentive - $0.65 per capita to municipalities with a population over 15,000 to encourage the use of school facilities by the community.

4.2.7.2 Staff

Currently there are four professional recreation consultants and four secretaries allocated to the Study Area to support the delivery of municipal recreation programs. It is expected that this staff complement is sufficient even with a potential population increase due to agricultural land expansion. Generally, the staff compliment in the Study Area is at a higher level than the remainder of the province because the municipal organizational and delivery service mechanism is less than in other areas.

4.2.7.3 Issues

1. The water bodies in the Peace Region are few and far between. Those available are in high demand which is increasing. An increase in agricultural expansion would result in an increase in siltation (due

to erosion) and eutrophication of the water bodies (due to fertilization). Generally, one generation of farming is sufficient to significantly reduce the recreation utility of a lake. An increase in agricultural development will also result in an increase in population. This population may yield more demand, yet the water bodies would not be able to accommodate this due to eutrophication.

2. The population in the Study Area is also quite dispersed. Therefore, there is likely to be a higher cost for the user to access recreation opportunities. A larger population may allow for more services thereby reducing these costs.

3. The recreation services provided in the Study Area are provided at a higher population standard than other areas of the province. This is because there is a lower population with individuals who demand a certain variety of services that would normally not be provided based on population size alone. However, due to the relative isolation and lack of access to a wider variety of services, certain services are provided. An increase in population due to agricultural expansion would likely increase the utilization and therefore the optimization of many services offered. There is likely to be little extra recreation services required unless populations increase dramatically.

4.2.7.4 Cost Calculations

An increase in agricultural expansion is likely to increase the population of the Study Area with a direct affect on the Recreation and Parks Department. However, this impact is likely to result in a transfer of the Government's expenditures from one area of the province to the Study Area as previously noted. Therefore, we do not anticipate any significant costs to Alberta Recreation and Parks as a result of an increase in agricultural land expansion in the Study Area.

TABLE 4.2.16

OVERVIEW OF HOSPITALS IN THE STUDY AREA

HOSPITAL TYPE	EXISTING NO. HOSPITALS	EXISTING NO. BEDS	OCCUPANCY RATE		BED AVAILABILITY[1]
			80-81	81-82	
Acute	14	595	Specific for each hospital		231
Auxiliary	2	88	98	99	-
Nursing	3	125	98	99	-

Note: There is one privately operated nursing home in the Study Area with 88 beds.

Source: Alberta Hospitals and Medical Care

TABLE 4.2.17

EXPANSIONS/NEW DEVELOPMENTS

UNDERWAY OR NEAR COMPLETION

LOCATION	EXISTING NO. BEDS BY TYPE	NEW NO. BEDS BY TYPE	DATE
Grand Prairie	139 acute 53 auxiliary 50 nursing	247 acute 110 auxiliary 100 nursing	December 1985
McLennan	61 acute 0 auxiliary 50 nursing	51 acute 20 auxiliary 50 nursing	September 1986
Brywyn	21 acute	0 acute	September 1983
Grimshaw	0 acute	25 acute	September 1983

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[1] Calculated as follows: average occupancy rate (1980-82) X beds in place - beds in place. The average occupancy rates for acute beds were calculated on a hospital by hospital basis and then added to yield the 231 bed availability.

Source: Woods Gordon

4.2.8 HOSPITALS

4.2.8.1 Introduction

Hospitals in Alberta are the responsibility of the Provincial Government - Alberta Hospitals and Medical Care. An increase in agricultural land expansion would likely bring with it an increase in population resulting in a need for hospitals.

4.2.8.2 Current Situation

The existing hospital situation is shown on Table 4.2.16 on the page opposite. As can be seen, the current occupancy rate is quite high.

The Province is now either developing new facilities or expanding existing ones in the Study Area. These are also shown on Table 4.2.17 on the page opposite. As can be seen the number of beds will be increased as follows in the near future:

acute 2 + 102 beds = 697
auxiliary + 77 beds = 165
nursing + 50 beds = 175

Impacts on occupancy rates are unknown at this time.

4.2.8.3 Costs Resulting From Agricultural Expansion

Alberta Hospitals and Medical Care have standards that can be used to anticipate the estimated impact of population increases on the need, and costs associated with, new hospital development. The standards are as follows:

- o acute hospital care
  - 5 beds/1,000 population
  - $61,600 operation costs[1]/bed
  - 2 staff/bed
- o auxiliary hospital care
  - 25 beds/1,000 population
  - $33,200 operation costs/bed
  - 1 staff/bed
- o nursing hospital care
  - 45 beds/1,000 population
  - $36.25 per person per day (assuming 100% occupancy = $13,231 operating costs/bed)
  - .6 staff/bed
- o capital costs for all three types of hospitals are approximately equal at $112,500/bed.

According to information received from the Alberta Department of Hospitals and Medical Care, there will be no overall requirements for extra hospitals (or expansions) in the study area due to population increases caused by agricultural expansion (however, there may be localized shortfalls due to the distribution of the supply). Currently there is an under-utilization of 231 acute beds in the study area. This will increase to 333 beds in 1986 when the new hospitals (or expansions) under way are completed. Given the existing standard of 5 beds/1,000 population, this supply is able to accommodate a population increase of about 66,000. The population increase estimated as a result of developing 154,000 acres of land for agriculture per year for 20 years is about 12,600.

4.2.9 ENVIRONMENT SECTOR

This section of the Report documents the anticipated costs, direct revenues and issues associated with the environment should agricultural land expansion increase. The specific Division included is:

- Water Resource Management

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[1] Operation costs include both staff (about 70% total cost) and services (about 30% total cost).

4.2.9.1 Water Resource Management

Water Resources in the Peace Region

Most land in the Peace Region is poorly drained and therefore very sensitive to changes in the land use pattern. The water regime, which is impacted by changes in land-uses, is particularly sensitive in the area of changes to the timing of the water flow and the energy created. Both these factors directly affect the erodibility of the land. If the land is maintained in a natural state there would typically be no requirement for controlling or modifying the water resources in the Region.

Water Resources Management Cost-Sharing Program

The Water Resources Management Cost-Sharing Program is utilized in the Peace Region. The program is designed to financially support the local authority (e.g. I.D.) in dealing with drainage in their area. The process follows includes:

- an individual in the local authority's area raises the issue with their Council
- the local authority refers the problem to Alberta Environment
- Alberta Environment investigates the problem primarily to assess whether or not the drainage problem is caused by a neighhour directing water to the problem area
- if it is a drainage problem not caused by a neighbours redirection of water, the local authority is informed of the situation
- the local authority then makes the decision to solve the problem and approaches Alberta Environment for a cost-sharing of the mitigation required

Approximately $3 million are expended each year on this program in the Peace Region.

Licensing System

If a farmer wants to move water off his land he must get a permit to do so. The permit ensures that the farmer receives written permission from the affected adjacent land owner (i.e. access, egress, movement course). This license is designed to protect land owners from water drainage damage caused by another land owner redirecting water.

Levels of Drainage

Alberta Environment recognizes three levels of drainage with corresponding responsibilities. These are:

- 3rd order of drainage (e.g. major river courses, dams, etc.)
  - Alberta Environment
- 2nd order of drainage (e.g. streams, problem drainage areas due to changes in land-use patterns, etc.)
  - cost shared Alberta Environment and local authority
- 1st order of drainage (e.g. farm run-off)
  - Farmer/Alberta Agriculture/Alberta Environment

Cost and Direct Revenues[1]

1. An increase in the amount of land given over to agriculture will require capital development to control the water run-off. As noted, the Peace Region is poorly drained and is one of the most expensive areas in the province to drain. Based on 1980 dollars on a gross

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[1] The figures in this section are as reported to us during interviews with Mr. Carl Primus and Mr. Don Hagman, Alberta Environments.

acreage basis, every acre of land improved for agriculture requires from $50.00 - $150.00, cost to Alberta Environment, in drainage developments of which 75% is the responsibility of Alberta Environment.

2. Once the drainage improvements have been put-in-place, there is a need to maintain and periodically upgrade the installments. Routine maintenance is valued at approximately 2% of the capital cost of the original development. Based on $50.00 - $150.00 capital cost/acre, the maintenance costs would be $1.00 - $3.00/acre of developed agricultural land per year of which 75% is the responsibility of Alberta Environment.

   Based on the experience of Alberta Environment, periodic upgrading or rehabilitation is usually done to expand an existing system, upgrade the system or replace worn out components of the system. The cost of rehabilitation is approximately 10% of the original capital cost on a 10 year basis; or 1% annually. The cost then would be $.50 - $1.50 per acre of developed agricultural land (Alberta Environment is responsible for 100% of the cost).

3. If the amount of agricultural land were to increase by 33% from it's present amount, then Alberta Environment would have to increase it's staff by 2-3 more people to administer the Act. This would be a cost increase of about $100,000 - $150,000 per year, including overhead.

4. If Alberta Environment becomes more proactive in it's activities in terms of more up-front planning and design to integrate water drainage and agricultural production, an extra 5-6 staff would be required at an annual cost of about $200,000 - $240,000.[1]

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[1] Both scenarios 4 and 5 have not been included in the cost calculations presented later since they would require a change from current practice that is not anticipated solely due to agricultural land expansion as noted in this Report.

5. If Alberta Environment assumes the current role of the local authorities, because the latter cannot effectively deal with the agricultural expansion (due to lack of funds), then the Department would require an extra 15-30 staff at an annual cost of $600,000 - $1,200,000.

Issues

1. There may be ways of reducing the costs incurred for drainage improvements as a result of agricultural land expansion. These include:
   - when the road system is being developed for the new agricultural area, if the right-of-way were increased from 66' to 100'
     - (a) there would be more area to accommodate run-off
     - (b) the Government, through Alberta Environment, would not have to come back to the area, several years later and buy land at a higher cost to control the water run-off problem
   - when land was opened-up for agriculture, if a more sensitive water management design were used, the natural environment would be able to absorb more of the water, thereby decreasing the costs of major water drainage improvements
   - the potential exists to improve the natural water retention areas (e.g. sloughs, muskeg) in a manner similar to stormwater lakes improvements in the urban context. It is likely that these areas are the most unproductive as agricultural land while also being too expensive for the farmer to use. Such improvements could also fit a multi-use purpose.
2. The design of agricultural land should consider the impact of the required drainage network on the agricultural production (efficiency) of the land and vice versa.
3. With an increase in the expansion of agricultural land comes the opportunity for farmers to cooperate and coordinate their efforts in the drainage of water.

TABLE 4.2.18

COSTS TO ALBERTA ENVIRONMENT
AS A RESULT OF AGRICULTURAL LAND EXPANSION IN THE STUDY AREA

1. Input: 154,000 acres given over to agriculture per year for 20 years.

2. Cost Table

Year	1 → 14 → 20 → 50
Acreage	154,000 →
Costs	$11.9M →
o Drainage Improvement, Maintenance, Rehabilitation	-- →
o Maintenance, Rehbilitation	-- → $7.7M →
Staff	
o Number	-- → 3 → 4 →
o Costs	-- → $150,000 → $200,000 →
Total	$11.9M → $12.05M → $7.9M →

4. In terms of responsibility for water drainage developments, if it is in the Provincial interest to open land for agriculture, then it is the Provinces responsibility to fund the infrastructure and manage the land.

5. The credibility of the land in the Peace Region is a major issue. The soils are primarily lacustrine clays on large slopes. Once the tree cover is removed the clays start to move. There is a serious question to be resolved 'how long will the lands remain productive under agricultural uses?'. Specific erosion control methods and education may be required.

Cost Calculations (See Table 4.2.18 page opposite)

1. Physical infrastructure improvements will be required from year 1 to year 20; that is, only during the agricultural expansion period. The calculation is: drainage improvements + maintenance + rehabilitation x acres given over to agriculture.

2. From year 21-50 there is only the requirement to maintain and rehabilitate what is in place.

3. The calculation for the staff requirements is:

   o existing agricultural base x .3 = 'A'

   o add annual incremental increase in agricultural land expansion until reach same level of 'A' above. At this point add three man years to the costs and repeat

   o annual staff cost = $50,000 (including overhead)

4.2.10 TRANSPORTATION

4.2.10.1 Introduction

The opening-up of agricultural lands is dependent upon roadway development that allows for access to these new lands. Although there are three types of roadways to be considered, primary, secondary and local, only the latter two are expected to be required in the Study Area due to agricultural expansion. The reason for this is that the basic primary road system is in place in the area. Any new agricultural land expansion would therefore, only require extension to the basic system in place; that is secondary and local roadways.

All secondary and local roads are costed at the 'gravel only' level of development. There are two reasons for this approach. Although Alberta Transportation has an objective to improve secondary gravel roads to a paved level after 10 years, this objective is subject to the priorities of each region. Therefore, there are no guarantees that this objective will be realized. Second, after 10 years, to directly attribute the need to upgrade secondary gravel to secondary paved can not be made. In a 10 year period many other developments and expansions will occur that put pressure on the need to upgrade to a paved secondary.

4.2.10.2 Cost Calculations[1]

1. The average capital cost of roadway development in the Study Area are as follows:

   o secondary gravel roadway - $80,000/km.
   o local gravel roadway - $40,000/km.

2. The average maintenance costs of roadway in the Study Area are as follows:

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[1] The base data used in this section of the Report is provided by Alberta Transportation who analyzed several current projects in the Study Area.

TABLE 4.2.19

COSTS TO ALBERTA TRANSPORTATION

AS A RESULT OF AGRICULTURAL LAND EXPANSION IN THE STUDY AREA

1. Input: 154,000 acres given over to agriculture per year for 20 years.

2. Cost Table

YEAR	ACRES	SECONDARY ROAD SYSTEM: KM. AND COSTS ($M)				LOCAL ROADS: KM. AND COSTS ($M)				TOTALS ($M)
		CAP. KM.	CAP. COST	MAINT. KM.(CUM.)	MAINT. COSTS	CAP. KM.	CAP. COST	MAINT. KM.(CUM.)	MAINT. COST	
1	154,000	45	3.6	--	--	255	10.2	--	--	13.8
2				45	.09			235	.51	14.4
3				90	.18			766	1.02	15.0
4				135	.27			1,020	1.53	15.6
5				180	.36			1,275	2.04	16.2
6				225	.45			1,530	2.55	16.8
7				270	.54			1,785	3.06	17.4
8				315	.63			2,040	3.57	18.0
9				360	.72			2,295	4.08	18.6
10				405	.81			2,550	4.59	19.2
11				450	.90			2,840	5.10	19.8
12				495	.99			3,060	5.68	20.5
13				540	1.08			3,315	6.12	21.0
14				585	1.17			3,570	6.63	21.6
15				630	1.26			3,825	7.14	22.2
16				675	1.35			4,080	7.65	22.8
17				720	1.44			4,330	8.16	23.4
18				765	1.53			4,590	8.66	23.9
19				810	1.62			4,845	9.18	24.6
20				855	1.71			5,100	9.69	25.2
21				900	1.80				10.20	25.8 12.0
50										

- o secondary gravel - $2,000/km.
- o local gravel - $2,000/km.

3. The average total km. of roadway that is required per township (23,040 acres) in the Study Area is 45. Although the average on a provincial basis is 88 km./23,040 acres, the Study Area is not as developed, nor will it be solely due to agricultural expansion. To raise the 45 km. figure to 88 km. may come within a period of 15 years however, much of this development would not be attributable to agriculture.

   Of the 45 average total km. of roadway required per township the average split between secondary and local is estimated at:

   - o secondary gravel 15%
   - o local gravel 85%

4. There are no expected increases in staff requirements other than those reflected in the capital and maintenance costs noted above.

5. Table 4.2.19 on the page opposite calculates the expected costs to Alberta Transportation as a result of opening up 154,000 acres of land for agriculture each year for the next 20 years.

4.2.11 EDUCATION

4.2.11.1 Introduction

It has been reported to us by the Department of Education that there are 37,530 pupil spaces in the Study Area and 25,425 pupils enrolled (as of September 30, 1982). This means that there is a surplus of 12,105 pupil spaces in the area.

Based on these enrollment figures and the population for the area which is estimated at 130,610 (census data 1982), the ratio of enrollment to population is 287 students per 1,000 population. An increase of 154,000 acres per year for 20 years will result in a population increase of about 12,600, which in turn would create an extra 3,626 students. This is well below the current surplus of 12,105 pupil spaces. Therefore, no impact on the physical infrastructure for education is anticipated. However, there may be localized shortfalls due to the present spatial distribution of the supply and the future distribution of demand.

Although there will likely be an operating cost requirement for the increase of about 3,600 pupils over the 20 years of agricultural expansion in the Study Area, these costs are expected to be quite modest in comparison to the other more significant costs to the Provincial Government.

4.2.12 MUNICIPAL AFFAIRS

4.2.12.1 Transfer Payments - Alberta Municipal Assistance Program

This transfer payment to municipalities amounts to $52.27 per capita. If the growth in the municipality is more than 5% in any one year, the per capita transfer is $107.54. This is an unconditional transfer payment. It is not expected that the growth in any one community will surpass the 5% figure due to agricultural land expansion as outlined in this Report.

4.2.12.2 Staff

As reported to us, there is no expection that an increase in agricultural land expansion in the Study Area will require extra staff for Municipal Affairs.

TABLE 4.2.20

SUMMARY OF COSTS AND DIRECT REVENUES TO THE PROVINCIAL GOVERNMENT

YEAR	COSTS							DIRECT REVENUES
	ENERGY AND NATURAL RESOURCES			ALBERTA AGRICULTURE	ALBERTA ENVIRONMENT WATER RESOURCES	ALBERTA TRANSPORTATION	TOTAL COSTS	ENERGY & NATURAL RESOURCES PUBLIC LANDS
	FISH AND WILDLIFE	RESOURCE EVALUATION AND PLANNING	PUBLIC LANDS					
1	1.06	3.0	1.027	10	11.9	13.8	30.887	10.78
2	1.11	3.0				14.4	31.537	
3	1.17	2.0				15.0	31.197	
4	.17	1.0				15.6	29.797	
5	.28	1.0				16.2	30.507	
6	.28	-				16.8	30.107	
7	.39					17.4	30.817	
8	.39					18.0	31.417	
9	.45					18.6	32.077	
10	.50					19.2	32.727	
11	.56					19.8	33.387	
12	.61					20.5	34.137	
13	.67					21.0	34.697	
14	.67					21.6	35.297	
15	.78			20	12.05	22.2	36.257	
16	.78					22.8	36.857	
17	.89					23.4	37.567	
18	.89					23.9	38.067	
19	.95					24.6	38.827	
20	1.00					25.2	39.477	
21			-		7.9	25.8	34.900	-
22						12.0	21.100	
50								

4.2.13 SUMMARY

A summary of this section of the Report follows:

1. A summary of the costs and direct revenues to the Provincial Government due to the expansion of agricultural land in the Study Area is presented on Table 4.2.20 on the page opposite. As can be seen, whereas the direct revenues associated with the sale of lands stop at year 20, some of the costs to the Provincial Government continue (i.e. staff requirements - except for public lands - and the maintenance of infrastructure put in place).

   The cost and direct revenues ratio discounted at 5%, 10% and 15% are presented on Table 4.2.21 on the page overleaf. This table is summarized on Table 4.2.22 opposite page 4.67. As can be seen the costs to the Provincial Government outweigh direct revenues throughout all 50 years. This is because of the static nature of the land sales as compared to the increasing nature of the costs.

   Table 4.2.23, also opposite page 4.67, indicates the net relative revenue to the Provincial Government of bringing one acre of land onstream for agricultural purposes. This table estimates the direct net revenue to range from -130.56 per year in year one to -215.46 per year in year 50.

2. Clearly, the expansion of agricultural land in the Study Area represents a significant net direct cost to the Provincial Government. This is as expected, since the majority of the benefits associated with the Provincial Government's expenditures are realized at the community and individual levels.

3. Once committed to the agricultural expansion program, the majority of resultant costs to the Provincial Government last beyond the initial expansion period of 20 years. Therefore, the costs to the Provincial Government are long term.

TABLE 4.2.21

PROVINCIAL GOVERNMENT COST AND DIRECT REVENUES PRESENT NET VALUE COMPARISONS ($M)

YEAR	COSTS				DIRECT REVENUES			
	CURRENT VALUE (1982 DOLLARS)	PRESENT VALUE			CURRENT VALUE (1982 DOLLARS)	CURRENT VALUE		
		5% D.R.	10% D.R.	15% D.R.		5% D.R.	10% D.R.	15% D.R.
1	30.887	30.887	30.887	30.887	10.780	10.780	10.780	10.780
2	31.537	28.605	26.064	23.892	10.780	9.778	8.909	8.167
3	31.197	26.949	23.439	20.513		9.312	8.099	7.088
4	29.797	24,514	20.352	17.077		8.869	7.363	6.163
5	30.507	23.903	18.943	15.167		8.446	6.694	5.359
6	30.107	22.466	16.995	13.016		8.044	6.085	4.660
7	30.817	21.901	15.814	11.585		7.661	5.532	4.053
8	31.417	21.264	14.656	10.270		7.297	5.029	3.524
9	32.077	20.677	13.603	9.116		6.949	4.572	3.064
10	32.727	20.092	12.589	8.089		6.618	4.147	2.665
11	33.387	19.525	11.715	7.180		6.304	3.782	2.318
12	34.137	18.965	10.872	6.380		5.989	3.433	2.015
13	34.697	18.358	10.057	5.642		5.704	3.125	1.753
14	35.297	17.827	9.289	4.985		5.444	2.837	1.523
15	36.257	17.431	8.674	4.454		5.183	2.579	1.324
16	36.857	16.907	8.029	3.938		4.946	2.349	1.152
17	37.567	16.405	7.439	3.491		4.707	2.135	1.002
18	38.067	16.111	6.847	3.075	↓	4.473	1.939	.871
19	38.827	15.347	6.303	2.729	10.780	4.261	1.750	.758
20	39.477	14.878	5.868	2.412	10.780	4.063	1.602	.659
21	34.900	12.509	4.716	1.854				
22	21.100	7.201	2.592	.975				
23	21.100	6.873	2.358	.848				
24	21.100	6.533	2.142	.546				
25	21.100	6.224	1.948	.641				
26	21.100	5.927	1.770	.557				
27	21.100	5.657	1.609	.485				
28	21.100	5.383	1.463	.421				
29	21.100	5.121	1.330	.366				
30	21.100	4.884	1.209	.319				
31	21.100	4.648	1.099	.277				
32	21.100	4.433	.999	.241				
33	21.100	4.220	.908	.209				
34	21.100	4.019	.826	.182				
35	21.100	3.822	.751	.158				
36	21.100	3.644	.683	.138				
37	21.100	3.470	.621	.119				
38	21.100	3.302	.564	.104				
39	21.100	3.149	.513	.091				
40	21.100	2.997	.466	.079				
41	21.100	2.855	.424	.068				
42	21.100	2.719	.385	.059				
43	21.100	2.589	.350	.052				
44	21.100	2.465	.318	.045				
45	21.100	2.347	.289	.039				
46	21.100	2.238	.263	.034				
47	21.100	2.129	.239	.029				
48	21.100	2.029	.217	.026				
49	21.100	1.932	.198	.022				
50	21.100	1.839	.179	.019				

4. The primary costs of agricultural expansion will be placed on the Departments of Transportation and Environment (the latter for drainage improvements).

5. The costs to the Provincial Government are in the areas of:

   - capital improvements (roadways and drainage improvements)
   - maintenance of the capital improvements
   - improvement of the data base in the Study Area to better plan for and accommodate agricultural expansion
   - staff (including overhead) primarily for enforcement, planning and extension services

6. The primary issues as reported to us are detailed in the body of this section of the Report. They are too numerous to repeat here. However, a major theme that reoccured across most of our interviews was the need to plan any expansion of agricultural land so as to minimize disruptions and reduce costs (e.g. up-front planning has the potential of reducing drainage costs). The second major theme was the need to critically assess the initial standard at which services are provided for agricultural expansion. The feeling was expressed that the existing standard may be too high for the start-up years; a reduction in the initial level of service, followed by a gradual phasing in to acceptable levels, could reduce costs to the Provincial Government and perhaps speed up expansion.

7. There is currently a significant problem associated with the poor data base system for agricultural capability, forest inventory capability, fish and wildlife inventory, non-renewable resources inventory and recreation/tourism inventory. Therefore, any expansion of agricultural land in the Study Area is fraught with difficulties of assessing (a) where the development should occur, and (b) what the impact is on other non-compatible land uses. Until this data base is improved, site specific decisions regarding agricultural land expan-

TABLE 4.2.22

SUMMARY OF THE DIRECT COSTS AND REVENUES TO THE PROVINCIAL GOVERNMENT AS A RESULT OF OPENING-UP 154,000 ACRES OF LAND PER YEAR FOR AGRICULTURAL PURPOSES

(5% Discount Rate: $M)

Time Period	Total Costs	Total Revenue
1	30,887	10,780
10	352,213	83,754
20	523,967	134,827
50	663,634	-

Note: The figures for the Provincial government only include direct costs and revenues and exclude taxes, royalties and other indirect revenues pursuant to agricultural and related developments.

TABLE 4.2.23

ESTIMATES OF DIRECT NET (ECONOMIC) REVENUES TO THE PROVINCIAL GOVERNMENT

(5% Discount Rate)

Time Period	Revenues Per Acre
1	-$130.56
10	-$174.32
20	-$126.34
50	-$215.46

sion, will lack the necessary information required to ensure they are the best decisions that have considered all costs and benefits.

8. It is expected that there will be little to no incremental costs to the Provincial Government in the following areas: recreation and parks, municipal affairs, social services, hospitals and education. The reason is that these services are provided based on the population in an area. Since we anticipate that the new population associated with any agricultural expansion will largely come from within the province, this would mean that an increase in service provision in the Study Area due to a population increase, would be offset by a population decrease, resulting in some service decrease in another part of the province. Therefore, except for localized shortfalls, the cost to the Provincial Government in these instances is really a transfer of expenditures from other areas of Alberta and does not represent a true incremental cost increase.

9. Certain components of other Provincial Government services and specific Departmental mandates, will not be significantly affected by the agricultural land expansion as suggested by the demand figures of this Report. This is because of the relatively minor nature of the population increase. Services such as hunting and sport fishing, and occurances such as road kills and wildlife harassment, are not expected to be significant.

10. Governmental services and specific Departmental mandates that relate to the land base (as opposed to population) will be affected. However, they are not quantified (in a monetary sense) in this Report. These include:

    - o the need for woodlots
    - o the potential loss of wildlife habitat areas
    - o the potential disruption of sensitive and/or seasonal fish and wildlife requirements

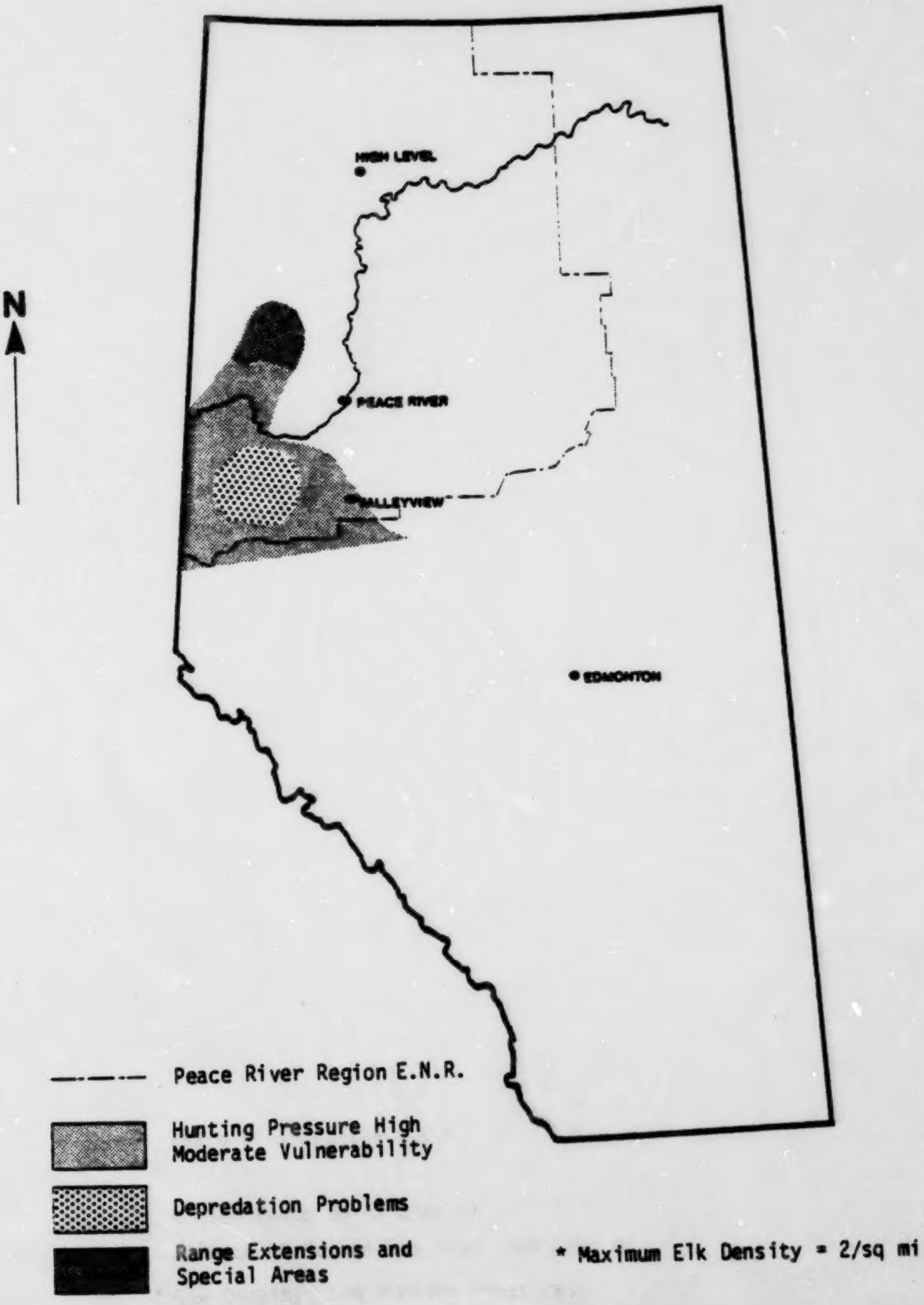
- fire prevention services

These are, nonetheless, real costs associated with agricultural land expansions.

APPENDIX A.4.2

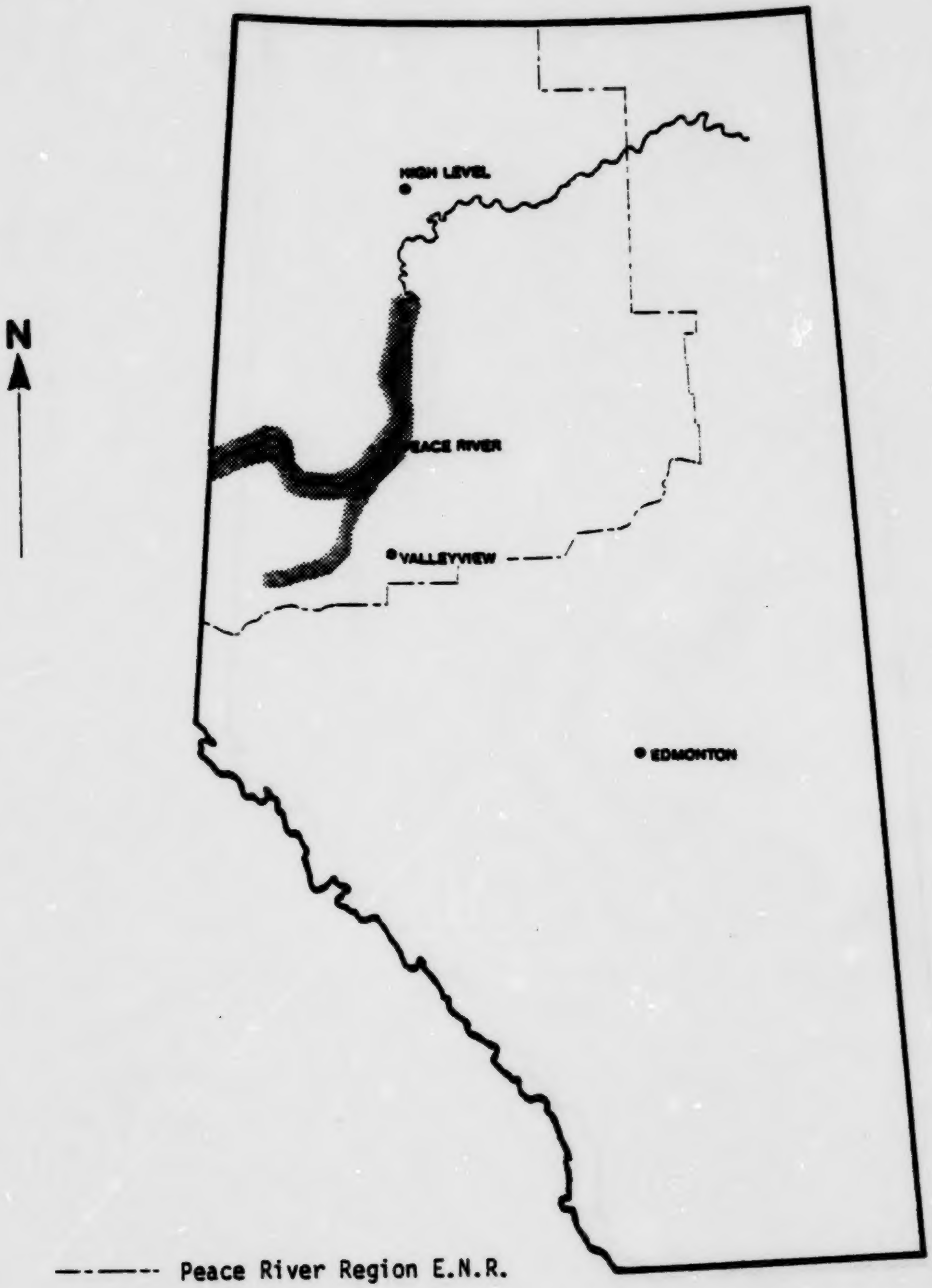
Woods Gordon

ELK SENSITIVITY


N
HIGH LEVEL
PEACE RIVER
VALLEYVIEW
EDMONTON
Peace River Region E.N.R.
Hunting Pressure High
Moderate Vulnerability
Depredation Problems
Range Extensions and
Special Areas
* Maximum Elk Density = 2/sq mi

Woods Gordon

WHITE-TAILED DEER SENSITIVY


N
HIGH LEVEL
PEACE RIVER
VALLEYVIEW
EDMONTON

-·-·-·- Peace River Region E.N.R.

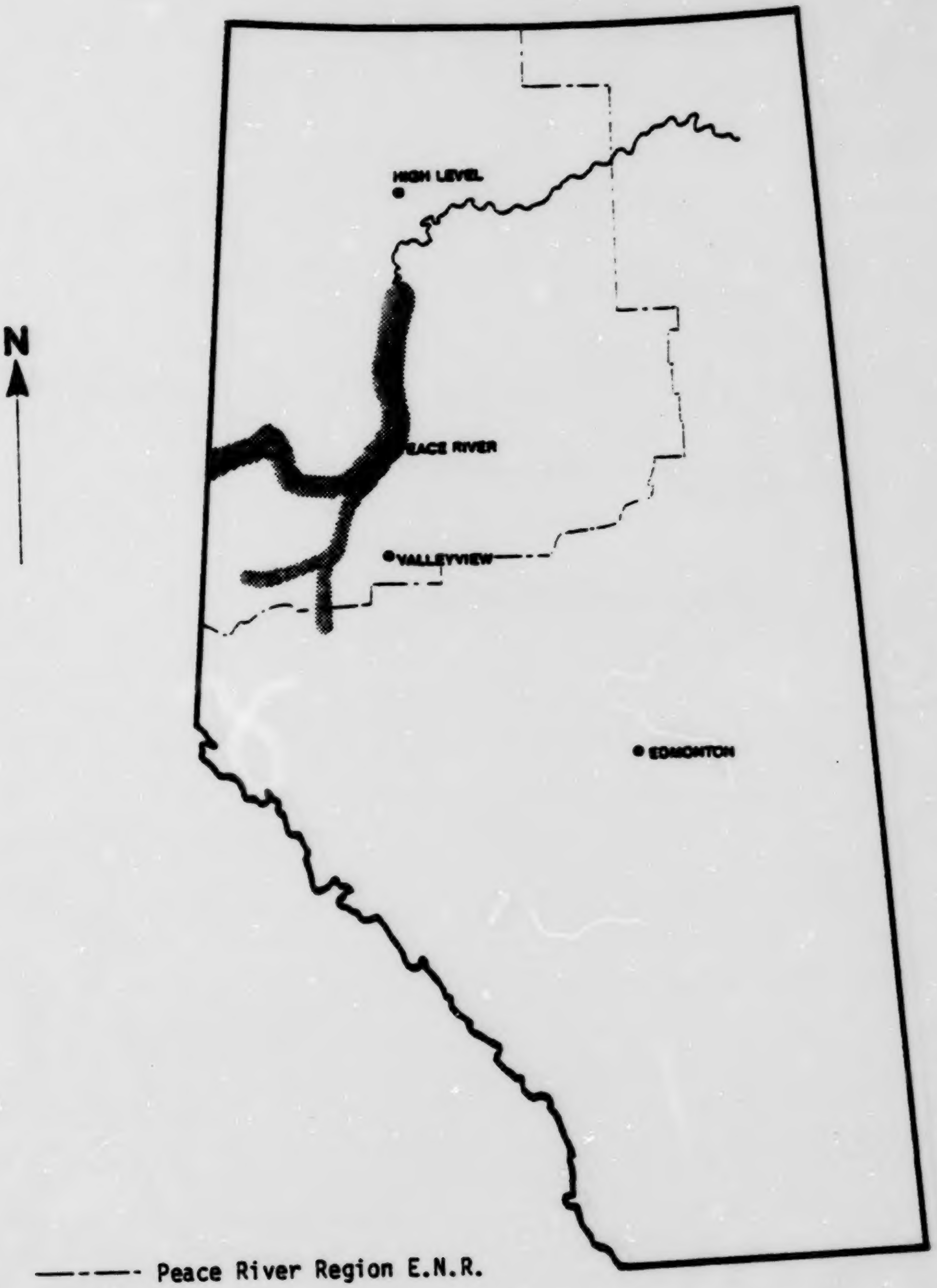
▨ Winter Range up to 2/sq mi

Balance of Region has less than 1/sq mi

* Low Density, Low Hunting Pressure,
Low Vulnerability

Woods Gordon

MULE DEER SENSITIVITY


HIGH LEVEL
EACE RIVER
VALLEYVIEW
EDMONTON
N

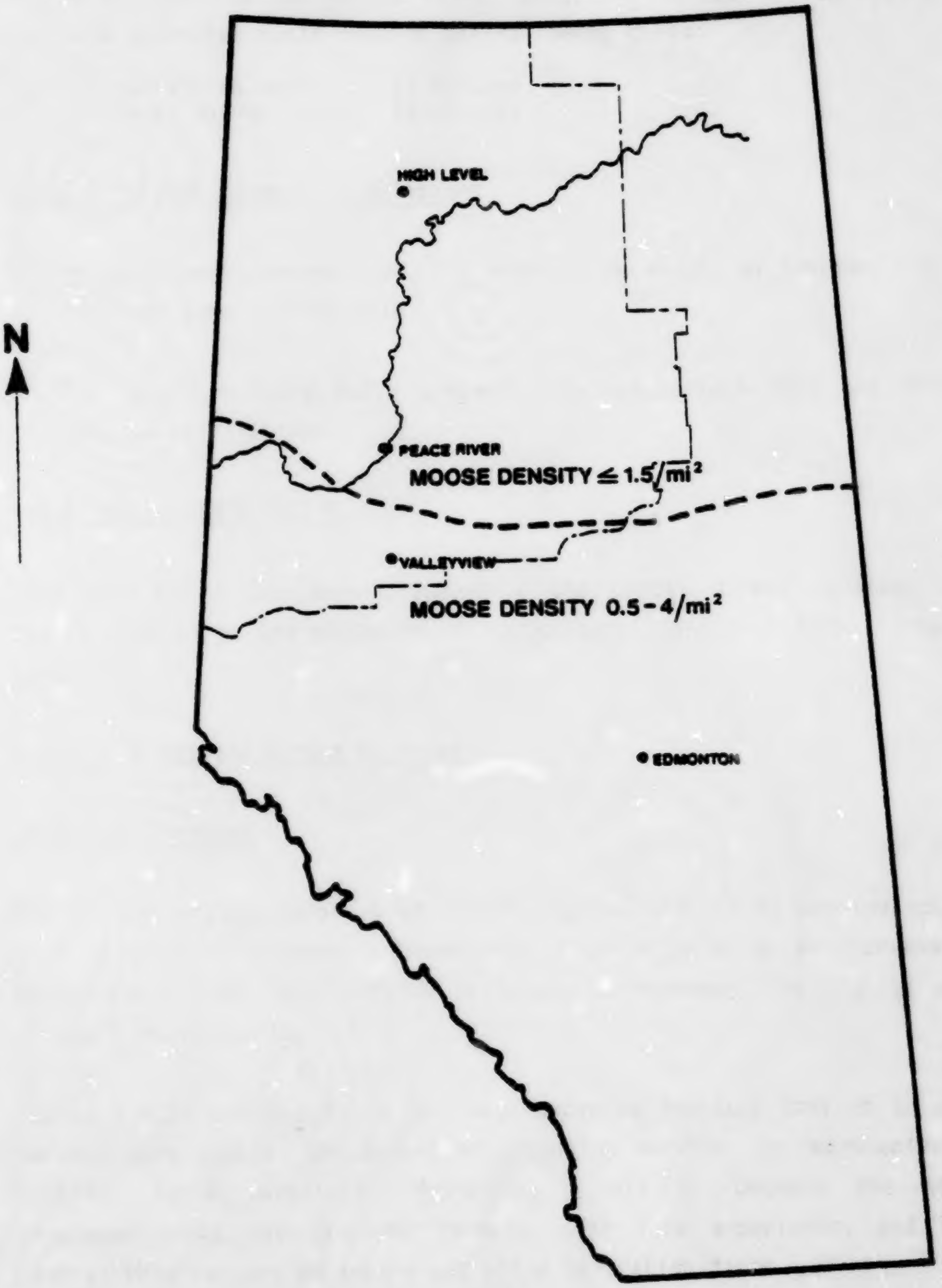
- – - – Peace River Region E.N.R.

▨ Winter Range 1 - 4/sq mi

* Balance of Region has less than 1/sq mi

* Population Low, Hunting Pressure Low

MOOSE DENSITY


HIGH LEVEL
N
PEACE RIVER
MOOSE DENSITY ≤ 1.5/mi²
VALLEYVIEW
MOOSE DENSITY 0.5-4/mi²
EDMONTON

—·—·— Peace River Region E.N.R.

2. In addition to the direct staff costs, an increase in agricultural land expansion would require the following costs:

   - consulting costs - $1.00/acre
   - legal survey costs - $5.00/acre

4.2.5.3 Direct Revenue Calculations

1. On the direct revenue side, the province receives, on average, $70.00 for each acre of land sold.

   The previous Table 4.2.9 presents the appropriate cost and direct revenue calculations.

4.2.6 AGRICULTURE SECTOR

This section of the Report documents the costs, direct revenues and issues related to the expansion of agricultural land on Alberta Agriculture.

4.2.6.1 Costs and Direct Revenues

Extension Services

One of the primary purposes of Alberta Agriculture is to provide extension services to farmers. Therefore, if there is to be an increase in agricultural land, this service is likely to represent the highest area of staff requirements.

Tables 4.2.10 and 4.2.11 on the page opposite indicate that as an area becomes more stable, the amount of extension service, as represented by District Agriculturalists, decreases. This is because the newer developed areas have younger farmers, with less experience, and less capital than farmers on second and third generation farms.

SECTION 4.3

COMMUNITIES IN NORTHWESTERN ALBERTA: AN ASSESSMENT OF POTENTIAL COSTS, BENEFITS AND OTHER IMPLICATIONS

SECTION 4.3

COMMUNITIES IN NORTHWESTERN ALBERTA: AN ASSESSMENT OF POTENTIAL COSTS, BENEFITS AND OTHER IMPLICATIONS

INTRODUCTION

The purpose of this section is to document a wide cross-section of the reported costs and benefits to the communities of Northwestern Alberta which might be anticipated from the potential opening of new lands for agricultural development. Following the documentation, we provide general estimates of the potential economic benefit/cost ratios which could result from this development.

The main source of information for this section came from numerous on-site interviews with public officials and business people from seven representative communities in Northwestern Alberta. The communities of High Level, Ft. Vermilion and La Crete were examined to cover the northern part of our study area, while in the south, Manning, Spirit River, High Prairie, Valleyview plus I.D.'s 20 and 21 were examined.

This particular cross-section of communities was selected for several reasons. We wanted a) a complete spatial coverage of Northwestern Alberta, b) representation of each stage of community development, from the more mature area (i.e. Spirit River) where there is very little new land left to be developed, to the relatively new areas (i.e. I.D. 23) where there is reported potential for the opening up of extensive tracts of new land, and c) a spatial distribution of communities within Northwestern Alberta so they could be examined in relative isolation from each other.

Conventional benefit-cost methodology was used. The research was largely dependent upon the on-site personal interviews with the use of secondary data to support the interview findings. While we spoke to a good cross-section of knowledgeable community and regional people (e.g. mayors, I.D.

managers), we could not talk to all concerned citizens due to time and budgetary constraints. We do feel that the information obtained is valid and reflective of the general opinions in Northwestern Alberta. The interview guidelines used for our data collection are contained in Appendix A.4.3.1, while the names of the people interviewed are contained in Appendix A.4.3.2.

Besides examining the general costs and benefits of opening new land, we examined five specific areas of community impact. These areas were a) population and employment, b) the retail and service market, c) infrastructure development, d) the social and cultural environment, and e) political impacts.

Information regarding both the past impacts and the anticipated impacts of opening up new land, was collected. The final section of this part of our Report gives the quantitative analysis of our benefit-cost assessment.

4.3.1 GENERAL ISSUES

The following discussion outlines several of the general issues and concerns that were often mentioned during our investigation. These points relate more to the overall regional affects of opening lands which will inevitably have a significant impact on the communities of Northwestern Alberta. It is important to bear in mind throughout this review that we are reporting and generalizing from the views, perceptions, opinions and feelings of the community residents who were interviewed.

4.3.1.1 Benefits

1. A significant benefit of expanding the present land base that was mentioned several times relates to the opportunities for existing farmers to increase their land holdings and make their farm unit more economically viable. Up to a point, the larger the unit (up to a

point where the farm becomes too difficult to manage), the more cost-effective the farm operation will be. In the long run, an increase in self-reliant farms (i.e. farms that generate enough income to keep the farmer fully employed) will also make the nearby community more self-reliant and economically stable. Not only will increasing farm income translate into more retail and service expenditures in the nearby community, many of the employment opportunities (i.e. oil and gas industry, forestry) normally taken by the farmers in the farming off-season, will now be available for the local community residents. These residents, in turn, will increase their expenditures in the community. It is a self-perpetuating process that encourages full regional employment as the area reaches its full agricultural potential.

2. While the oil and forestry industries are presently regarded as great opportunities for generating relatively high incomes, it has been reported that there has been a rather recent realization (encouraged by the oil industry downturn) in many northern communities that agriculture is the industry of the future in Northwestern Alberta. As a result, many communities want to see the expansion of the agricultural land base expedited in a judicious manner - favouring local resident involvement.

3. It was reported in our interviews that the opening of new land is usually conducted by small individual operators which have, in the past, encouraged the continuation of the "farmsteading ethic". This ethic is simply the desire to remain individually free of government intervention, while maintaining a strong entrepreneural commitment. It has been said that this hard working attitude, which prevails in the rural areas, encourages or at least sets an example for community residents to work hard. This is further supported by a general attitude of resentment by the farmers regarding "highly paid bureaucrats".

4. A major benefit of opening new lands is that the economic activity associated with the land is largely locally controlled. Since most of the income generated from the land is derived from outside markets (i.e. grain exports) and a considerable proportion of the profits are used in the purchase of goods from nearby communities, as well as increasing the equity of the land, the development of new agricultural land creates a very positive and self-perpetuating flow of funds into the community and region. This is not the case for most other industries. For instance, the oil, gas and forestry industries, while producing large amounts of tax revenues for the region's local governments and wage dollars to the local population, is often externally controlled, where most of the profits leave the region with very little, if any, local equity accumulation. There is actually an equity depreciation as oil and gas reserves are depleted.

4.3.1.2 Costs

1. There is a concern that the present land base is under-utilized and the future expansion of the base will promote further poor land management by farmers. It was expressed, on several different occasions, that farmers have to be encouraged to put undeveloped land that has been already titled into production before new land is developed. There is a concern that marginal or environmentally sensitive land is being developed while good titled land remains undeveloped.

2. It was mentioned that there is a general concern that there is already excessive production of grains and livestock in Alberta and by increasing the land base we will just worsen an already poor agricultural market. There is a concern that increased production could lower commodity prices for the existing farmers.

3. A major complaint from some of the people interviewed is that the Green Area unnecessarily restricts the development of good agricul-

tural land. As long as the Green Area remains closed, or is perceived to be closed to agricultural development, there is a concern that undue pressures on less desirable land in the Yellow Area - land that has high flood potential or is otherwise environmently sensitive. Communities may be restricted in the growth potential by this administrative limitation (Green Area) to their rural land base.

4. In developing areas (e.g. I.D. 23), the general opinion from the people interviewed was that the opening of new lands has been and will continue to be beneficial for the communities of Northwestern Alberta. It was also suggested that this strong positive opinion, with respect to new land development, may create a problem. This support may tend to mask any potential costs associated with land development, because most people have a strong opinion that land development can be only positive. Only after a problem arises and a major capital expenditure is needed to correct it (e.g. drainage ditch, water diversion) do the residents see the costs associated with opening new lands.

4.3.2 POPULATION AND EMPLOYMENT: IMPACTS

The impacts of opening new land on community population and employment have varied for each community that was examined. Some communities that are very dependent on the surrounding agricultural land base for their retail and service receipts have relied on the development of new land to sustain their population and employment growth. Therefore, for these communities, the development of new land is very important to continued growth. Some communities with less dependency on the agricultural land base view the development of new land as a stabilizing factor in their growth potential. For instance, the development of an agricultural base surrounding the community gives the residents an opportunity for employment when the oil and gas or forestry industries are in a seasonal downturn (i.e. during spring and autumn).

Because the opening of new lands has been controlled over a long period, with a pre-determined amount of land allotted for release each year, the associated impact on population and employment growth attributed to the opening of lands has been correspondingly gradual. For the communities surveyed, any period of rapid growth could be largely attributed to regional oil and gas activity (e.g. Valleyview area), or the development of the regional forestry resource. Therefore, the opening of new lands has very little direct impact on community population or employment growth except for providing a slow incremental expansion of the rural population base which the community services.

We have calculated that for every increase of one person in the region there will be an equivalent increase of .44 people in a community. This figure was calculated from the present rural/community ratio in I.D. #23, which we consider fairly representative of Northwestern Alberta (see page opposite).

From the field interviews, several other impacts were noted:

1. The growth of the rural population base associated with the opening of new lands (i.e. 2.63 people for every one section developed) brings forth many multi-skilled workers (i.e. farmers) into the regional economic base from which the communities can draw from for their own employment requirements.

2. It was reported that the in-migration of homesteaders has provided a demographic equilibrium to many northern communities as their populations would have likely decreased, due to the trend of young community members moving to large urban centres (e.g. Edmonton, Grande Prairie).

3. There exists a good reciprocal relationship between the oil and gas industry and forestry and the agricultural industry. The oil and forestry industries are dependent on the employment

skills of farmers to work in the field during the winter and some summer months, while agricultural activity is slow. On the other hand, the agricultural industry needs the wages from the oil and forestry industries to supplement farm incomes. This is especially evident for young farmers who have not attained enough equity in their farming unit to be self-sustaining. This same type of reciprocal relationship exists with the forestry industry, but to a lesser degree, because the forest industry is more stable, without the wide seasonal fluctuations in activity.

4. As Northwestern Alberta matures, there will be a steady stream of retiring farmers into the communities, adding to their population base.

5. It was reported that the tendency to have large families with an accompanying strong tendency for these children to enter farming has and will continue to perpetuate the demand for new lands in Northwestern Alberta (e.g. I.D. 23).

4.3.3 RETAIL AND SERVICE MARKETS: IMPACTS

The reported impacts of opening new lands in the community retail and service markets have been universally positive. It is obvious that the continuous expansion of the rural trading area population can only enhance the retail and service businesses in the communities. Generally, as the regional land base expands, the retail and service markets in the nearby community also expands to service this land expansion until a status quo is reached, where the growth in the rural population has levelled off due to the limited expansion of the agricultural land base. In turn, the community retail market also stops expanding (e.g. Spirit River). Any changes in the retail and service markets in a mature area are usually internalized, where the status quo is maintained by some upgrading and specialization accompanied by a slower turnover of retail and service businesses. The incoming retirement population from the rural area also adds stability to the community retail and service market.

Besides the typical retail expansion associated with any growth in population (i.e. food, clothing, hardware) there are some areas of retailing that can be directly attributed to the expansion of the land base. These are:

1. Stores such as the Co-op, Macleods, and building and hardware stores are abundant and generally good quality because farmers demand and support these types of stores.

2. It was mentioned that a good used farm equipment market has developed and will likely continue developing because new farmers usually cannot afford new equipment. In turn, as these new farms mature and become more profitable they will however, demand more new equipment. It is regular farm practice to upgrade farm equipment whenever possible. Therefore, both used and new equipment sales have and will continue to expand.

3. While there is a tendency to patronize the closest local community, farmers will generally go where the best price and service can be obtained, especially for higher priced items (e.g. some farmers near High Level purchase farm equipment from a dealer in Berwyn). The consequence of this practice has been that the smaller communities have become more responsive to consumer needs and competition from other communities. There will, however, continue to be a turnover of businesses as some businesses fail to respond to the new demands of their market and others find their niche in the retail market.

4. Because retail purchases (especially convenience items) are largely a function of distance, some small communities have

sustained a good retail market, fueled by the rural trading area, because of their relative isolation and location (e.g. Manning, La Crete) while other communities (e.g. Spirit River, High Prairie) have suffered, especially during the recent economic downturn, because they have to compete with nearby and larger communities.

4.3.4 THE SOCIAL AND CULTURAL ENVIRONMENT: IMPACTS

It was reported that the impact of opening new lands for agriculture on the social and cultural environment has been significant, and will likely continue to cause further social and cultural change in the future. From the interviews, some of the major costs and benefits mentioned regarding the community's social and cultural environment are as follows:

1. While most farmers are generally friendly to newcomers, it was reported that there is an extended period (i.e. up to 5-10 years) during which most newcomers are regarded as "foreigners". There is a perception that newcomers have to "pay their dues" - survive a couple of years of drought, exhibit their willingness to work despite the conditions. This guarded view of newcomers has had a tendency to divide the farming community into two social groups - (a) the traditionalists, and (b) the modern farmer. For the most part, this is a social perception and has very little to do with actual farming practices. The continuing introduction of many newcomers will probably promote this social separation in the rural community. There are exceptions to this, as witnessed in the Mennonite community of La Crete, where there are strong paternal relationships and much of the land expansion has been internalized with local residents (i.e. sons of established farmers) doing most of the new land development.

2. It was suggested that the economic expectations of many young new farmers are high because of the oil, gas and forestry

industries which have relatively high wages in relation to farm income. The problems associated with this have been minor in the past, but could lead to more serious consequences in the future. For instance, it has been reported that there has been a minor erosion of the strong rural work ethic that has persisted in the Peace Region, which would see most farmers persisting despite bad economic conditions or crop failures. It was reported that with the recent ease of obtaining high paying jobs, there could be a tendency for many new small-scale farmers to cease developing their land to its fullest potential, or even the farmer abandoning it altogether (i.e. selling out and moving to the nearby community).

3. It was reported that an increase in the disposition of land for agriculture will likely increase the demand for community social services. Both the formal services (e.g. hospitals, schools) and informal services (e.g. entertainment, social clubs) will have to be enhanced to accomodate the influx of new people. For the most part, the formal social-related community services were regarded by most of the people interviewed as adequate in Northwestern Alberta. It is in the area of informal services (e.g. family counselling) that greater attention will have to be given in the communities to meet the demands of recent arrivals.

4. A major benefit from the influx of farmers into the Region has been the stabilizing of an historically transient population. Communities in Northwestern Alberta do not now rely as much on oil industry and forestry industry activity to supply their community with economic opportunities, as they did in the past. With the present agricultural base constantly expanding, investors in northern communities are reported to be starting to take a longer term perspective, and not base their business development plans on short term or "quick-money" businesses.

The result of this has been a moderate growth in business confidence in some communities (some reported that they never really experienced the recent recession to the same degree as other parts of Alberta).[1] This has created a general feeling of social vitality and strength, with several communities having an optimistic eye to the future (e.g. High Level, La Crete) - all largely based on the long term stabilizing influence of agriculture in the Region.

4.3.5 POLITICAL IMPACTS

It was reported that the impact of opening new lands on the political environment in northern communities has been relatively small in the past. While it is recognized as a more contentious political issue at the regional and provincial levels, it is generally taken in stride in the communities and not regarded as a "hot" issue. However, there have been some recent developments that indicate more significant political changes are forthcoming. Some of the key issues and developments that have occurred and may occur are as follows:

1. While the opening of land itself is regarded as a minor issue, as long as the disposition of land is conducted in an equitable manner, there is widespread concern regarding the erosion and flooding caused by lands being opened. Because of the time lag between the opening of land and the flooding and erosion that may occur, there is usually little concern raised until after the land is developed and flooding occurs. Because of the very high cost of controlling and monitoring flooding and erosion, there has been more and more local and regional recognition of the problem. If the opening of land continues to create an extra tax burden, because capital projects have to be instituted, there is great potential for a significant political issue to arise. This problem is especially evident in the areas

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[1] More than likely due to the local level of activity in the oil, gas and forestry sectors.

where the land is hilly and susceptible to rapid run-off (e.g. slopes of the Peace River Valley).

2. It was reported that there is an increasing political awareness in the communities, especially in relation to the Provincial and Federal governments. As an example, it was suggested that there is a general sentiment in the predominantly farming communities (e.g. La Crete, Spirit River) that the Provincial government favours the oil industry and disregards the concerns of the agricultural industry. For instance, some concerns that the community representatives had were that not enough money was being spent developing the proper agricultural infrastructure (i.e. not enough elevators, seed cleaning plants), while the Provincial government was "wasting" tax money subsidizing the oil industry. In other words, the familiar argument which professes that foreign oil companies are supported in favour of the agricultural industry (an industry that provides more jobs and stability to the economy) is fairly widespread in Northwestern Alberta. Young farmers who are developing new land, who need as much assistance as possible, are an emerging group who, in the future, may work hard to win over government to support their cause - agricultural land development.

3. The past political activity in most communities has usually centred around a few concerned citizens. Because of this, these citizens usually sit on most of the same committees. This is typical of most communities, almost anywhere. Now however, it has been reported that there is more widespread political awareness in the communities and surrounding region. Consequently, it was indicated that there is more demand to sit on these previously "closed" committees. One of the strongest new players in the political arena is the farmer and the farming organizations. Not only are they demanding representation on regional committees, they are starting to request exposure to

TABLE 4.3.1

COMMUNITY BENEFIT/COST MARKET PRICES

(1982 constant dollars)

	BENEFITS ($ m)								COSTS ($ m)			
Years	Retail Receipts[1]	Service Receipts[2]	Tax Revenues[3]	Land Clearing[4]	Road Construction[5]	Road Maintenance[6]	Land Sales	Total	Community Land Development Costs	Infrastructure Development	Costs of Delivering Retail and Service Goods	Total
1	5.13	.69	.1	9.22	12.42	.6	1.64	29.80	1.64	.36	4.66	6.66
2	10.26	1.38	.2	9.22	12.42	1.2	1.64	36.32	1.64	.36	9.31	11.31
3	15.39	2.07	.3	9.22	12.42	1.8	1.64	42.84	1.64	.36	13.97	15.97
4	20.52	2.76	.4	9.22	12.42	2.4	1.64	49.36	1.64	.36	18.62	20.62
5	25.65	3.45	.5	9.22	12.42	3.0	1.64	55.88	1.64	.36	23.28	25.28
6	30.78	4.14	.6	9.22	12.42	3.6	1.64	62.40	1.64	.36	27.94	29.94
7	35.91	4.83	.7	9.22	12.42	4.2	1.64	68.92	1.64	.36	32.59	34.59
8	41.04	5.52	.8	9.22	12.42	4.8	1.64	75.44	1.64	.36	37.25	39.25
9	46.17	6.21	.9	9.22	12.42	5.4	1.64	81.96	1.64	.36	41.90	43.90
10	51.30	6.90	1.0	9.22	12.42	6.0	1.64	88.48	1.64	.36	46.56	48.56
11	56.43	7.59	1.1	9.22	12.42	6.6	1.64	95.00	1.64	.36	51.22	53.22
12	61.56	8.28	1.2	9.22	12.42	7.2	1.64	101.52	1.64	.36	55.87	57.87
13	66.69	8.97	1.3	9.22	12.42	7.8	1.64	108.04	1.64	.36	60.53	62.53
14	71.82	9.66	1.4	9.22	12.42	8.4	1.64	114.56	1.64	.36	65.18	67.18
15	76.95	10.35	1.5	9.22	12.42	9.0	1.64	121.08	1.64	.36	69.84	71.84
16	82.08	11.04	1.6	9.22	12.42	9.6	1.64	127.60	1.64	.36	74.50	76.50
17	87.21	11.73	1.7	9.22	12.42	10.2	1.64	134.12	1.64	.36	79.15	81.15
18	92.34	12.42	1.8	9.22	12.42	10.8	1.64	140.64	1.64	.36	83.81	85.81
19	97.47	13.11	1.9	9.22	12.42	11.4	1.64	147.16	1.64	.36	88.46	88.46
20	102.60	13.80	2.0	9.22	12.42	12.0	1.64	153.68	1.64	.36	93.12	93.12
21	.	.	.			.		130.4			.	.
.	.	.	.			.		.			.	.
.	.	.	.			.		.			.	.
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50	102.60	13.80	2.0			12.0		130.4			93.12	93.12

1. Assume $5,633 retail expenditure per person per year.
2. Assume $763 service expenditure per person per year.
3. Asssume $1,200 tax per household (3.4 people per household).
4. Assume cost of clearing at $200 an acre with 30% of revenues spent in community.
5. Assume cost of developing secondary roads at $80,000 km., local roads at $40,000 km. with 90% of others spent remaining in the region.
6. Assume cost of maintenance at $2,000 km. a year for both secondary and local roads.

community committees. The effect of new farmers on this trend will be significant, especially if they feel their concerns are under or mis-represented.

4.3.6 QUANTITATIVE ANALYSIS

In this section we synthesize the discussions of selected (economic) benefits and costs into a general quantitative assessment of these impacts.

Step 1 - Market Prices

The market prices displayed in Table 4.3.1 opposite are based on the following assumptions. While we recognize these assumptions can be challenged, we believe, based on our experience and the data available, that the assumptions are a fair reflection of the potential developments in the communities of Northwestern Alberta.

1. Demand Calculation[1] - Based on our survey results (see Table 4.3.2), we have determined the total 50 year demand potential to be approximately 3,074,803 acres or 61,496 acres a year (see page overleaf for the demand calculation). We are assuming all of the land to be developed in the first 20 years. Therefore, for our benefit-cost assessment, we will compress the 50 year demand into 20 years. This will mean approximately 153,740 acres a year will be developed for 20 years.

2. If we assume the number of people per section of farmland to average 2.63 (based on 1981 census data for Census Division 15),

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[1] Note: For our benefit/cost analysis we only accounted for crown land demand and did not include patented land as this type of land demand would not mean the development of new land.

TABLE 4.3.2

AGRICULTURAL LAND IN NORTHWESTERN ALBERTA: CROWN LAND DEMAND CALCULATION

DEMAND INDICATED FROM SURVEY (Acres)

Year	Local Farmers' Demand	Farmers' Children	Other Crown Land Applicants	Total
1983	93,936[1]	102,433[1]	19,691	206,063
84	83,936	102,433	19,691	206,063
85	83,936	102,433	19,691	206,063
86	21,001	36,178	9,021	66,200
87	21,001	36,178	9,021	66,200
88	21,001	36,178	9,021	66,200
89	21,001	36,178	9,021	66,200
90	21,001	36,178	9,021	66,200
91	4,515	8,785	2,475	15,775
92	4,515	8,785	2,475	15,775
93	4,515	8,785	2,475	15,775
94	4,515	8,785	2,475	15,775
95	4,515	8,785	2,475	15,775
96	4,515	8,785	2,475	15,775
97	4,515	8,785	2,475	15,775
98	4,515	8,785	2,475	15,775
99	4,515	8,785	2,475	15,775
2000	4,515	8,785	2,475	15,775
1983-2000	401,967	576,038	128,924	1,106,929

Fifty year demand (D): $\frac{18 \text{ years}}{50} \times \frac{1,106,929}{D}$

$D = \frac{55,346,450}{18}$

D = 3,074,803 acres
or 61,496 per year for 50 years

---

1. Assume 80% of farmers' children demand to be for crown land.

the development of 153,740 acres would mean the addition of new residents to the region, directly associated with agricultural land development, of approximately 632 persons.

3. If we assume the regional/community population ratio to be 1:0.44 (based on I.D. 23 as an example), the net annual population increase to the communities of Northwestern Alberta would be 278 people (see Table 4.3.3).

4. We assume annual retail expenditure of $5,633.00 per person (1982 dollars) and service expenditures of $763.00 per person (based on trade statistics for Census Division 15).

5. We assume the cost of developing secondary roads to be $80,000 per km. and local roads $40,000 per km. Maintenance costs will be assumed to be $2,000 per km. per year for both secondary roads and local roads. We assume 90% of road construction dollars will be spent in the region, while 100% of maintenance costs will be spent in the region.

6. We assume the annual municipal tax at $1,200 per household (based on the average for the communities surveyed). For our calculation we assume 3.4 people per household.

7. We assume 30% of revenues from land clearing to be spent in the community, with the cost of clearing at $200.00 per acre.

8. We assume the cost of developing one residential sub-division lot to be $20,000 (based on the average of the communities surveyed). In the same token, we assume these lots to be sold for an average of $20,000 per lot.

9. To determine the incremental infrastructure cost to the community we averaged the debenture debt per capita for several

TABLE 4.3.3

CALCULATION OF REGIONAL/COMMUNITY POPULATION RATIO

I.D. #23	Total population 1982 - 8,930		
	Communities	High Level	2,354
		Ft. Vermilion	706
		La Crete	608
		Zama	250
			3,918
Regional/Community Ratio	$= \frac{3,918}{8,930} = .44$		

communities and came up with a shadow price of $1,300.00 per person. Applying our population increase of 278, we assume a cost of $361,400 per year for incremental infrastructure costs.

10. Assume the costs of delivering the retail and service receipts to be 80% of the total retail and service receipts (i.e. benefits).

Step 2 - Present Value Calculation

From our calculations of the total current benefits and costs expressed as market prices, we determined the present value of these benefits and costs using three discount rates (i.e. 5%, 10%, 15%) over a 50 year period. These calculations are presented in Table 4.3.4.

Step 3 - Calculating the Benefit/Cost Ratio

The final benefit/cost ratios, calculated by adding up the appropriate time period (discounted) market prices, are outlined in Table 4.3.5. We also calculated the net benefit per acre for each time period.

The ratios clearly indicate that the potential economic benefits to the communities far outweigh the anticipated economic costs which they could incur as a result of such agricultural land development. We ended up with an escalating ratio for all three discount rates for the entire 50 year period.

But there are other factors that have to be considered when interpreting these ratios. The first, is that the calculations are specific to the community impacts, and do not integrate the benefits and costs to the farmer, Provincial government or the Albertan economy as a whole. In this regard, there are very substantial economic costs incurred by the Provincial government (e.g. transportation) and the farmer (e.g. land costs). The communities, for the most part, are the recipients of the

TABLE 4.3.4

THE COMMUNITIES IN NORTHWESTERN ALBERTA:

BENEFIT/COST AND PRESENT VALUE COMPARISONS

YEAR	BENEFITS (millions)				COSTS			
	Current Value (1982 dollars)	Present Value			Current Value (1982 dollars)	Present Value		
		5% D.R.	10% D.R.	15% D.R.		5% D.R.	10% D.R.	15% D.R.
1	29.80	29.80	29.80	29.80	6.66	6.66	6.66	6.66
2	36.32	35.43	30.02	27.52	11.31	10.26	9.35	8.57
3	42.84	37.03	32.21	28.17	15.97	13.80	12.00	10.50
4	49.36	40.79	33.72	28.37	20.62	17.00	14.00	11.78
5	55.88	43.79	34.71	27.80	25.28	20.00	16.00	12.56
6	62.40	46.57	35.25	27.01	29.44	22.34	17.00	12.94
7	68.92	48.88	35.38	25.91	34.59	25.00	17.75	13.00
8	75.44	51.04	35.25	24.73	39.25	27.00	18.31	12.83
9	81.96	52.88	34.76	23.35	43.90	28.30	18.61	12.47
10	88.48	54.32	34.16	21.87	48.56	30.00	18.68	12.00
11	95.00	55.56	33.33	20.43	53.22	31.12	18.67	11.46
12	101.52	56.40	32.33	18.98	57.87	32.15	18.43	10.81
13	108.04	57.16	31.32	17.57	62.53	33.08	18.13	10.17
14	114.56	57.86	30.15	16.18	68.18	34.43	17.94	9.63
15	121.08	58.21	28.97	14.87	71.18	34.22	17.02	8.74
16	127.60	58.53	27.80	13.63	76.50	35.09	16.66	8.17
17	134.12	58.57	26.56	12.46	81.15	35.43	16.06	7.54
18	140.64	58.36	25.29	11.36	85.81	36.00	15.43	6.93
19	147.16	58.17	23.89	10.34	88.46	35.00	14.36	6.21
20	153.68	57.92	22.84	9.39	93.12	35.09	13.84	5.69
21	130.4	46.74	17.62	6.93		33.40	12.58	4.94
22	130.4	44.51	16.02	6.03		31.78	11.44	4.30
23	130.4	42.48	14.57	5.24		30.33	10.40	3.74
24	130.4	40.37	13.24	4.55		29.00	9.46	3.25
25	130.4	38.47	12.04	3.96		28.00	8.60	2.83
26	130.4	36.63	10.94	3.44		26.15	7.81	2.46
27	130.4	34.96	9.95	2.99		25.00	7.10	2.14
28	130.4	33.27	9.04	2.60		24.00	6.46	1.86
29	130.4	31.65	8.22	2.26		23.00	5.87	1.62
30	130.4	30.19	7.47	1.97		22.00	5.34	1.41
31	130.4	28.72	6.80	1.71		21.00	4.85	1.22
32	130.4	27.39	6.18	1.49		20.00	4.41	1.06
33	130.4	26.08	5.61	1.29		19.00	4.00	.92
34	130.4	24.84	5.10	1.13		18.00	3.64	.80
35	130.4	23.62	4.64	.98		17.00	3.31	.70
36	130.4	22.52	4.22	.85		16.08	3.01	.61
37	130.4	21.45	3.84	.74		15.31	2.74	.52
38	130.4	20.41	3.49	.64		15.00	2.49	.46
39	130.4	19.46	3.17	.56		14.00	2.63	.40
40	130.4	18.52	2.88	.49		13.22	2.05	.35
41	130.4	17.65	2.62	.42		13.00	1.87	.30
42	130.4	16.80	2.38	.37		12.00	1.70	.26
43	130.4	16.00	2.16	.32		11.12	1.55	.23
44	130.4	15.23	1.97	.28		11.00	1.40	.20
45	130.4	14.51	1.79	.24		10.36	1.28	.17
46	130.4	13.83	1.63	.21		10.00	1.16	.15
47	130.4	13.16	1.48	.18		9.39	1.05	.13
48	130.4	12.54	1.34	.16		8.95	.96	.11
49	130.4	11.94	1.22	.14		8.52	.87	.10
50	130.4	11.37	1.11	.12	93.12	8.11	.79	.09

Source: Woods Gordon (1983)

economic benefits with very few costs. If the ratio was calculated for all four interest groups (i.e. community, Provincial government, farmers and the Albertan economy) the ratio would probably be significantly reduced.

The second consideration is the exclusion of many social, cultural and political benefits and costs from the ratio. Due to lack of defensible data, we did not attempt to determine market or even shadow prices for these factors. We feel the documentation of the concensus opinions we presented earlier is sufficient to reflect many of these factors. Therefore, it should be emphasized that such incommensurables and intangible factors as political trends, social well-being, work ethics and cultural autonomy were not quantifiable but nevertheless do play a major role in the final social benefit-cost assessment.

An interesting way to perceive the extent of the benefits is to look at the net benefit per acre figures (Table 4.3.6). If we look at the net benefit per acre figures given the 5% discount rate, we see a fairly steady escalation in the net benefits to the communities for every acre developed. The magnitude of the benefits is very large (i.e. $115,533 per section in Year 1, $206,528 in Year 20 and $363,744 in Year 50). In other words, the development of one section of new land would mean approximately $364,000 would be spent in the communities over the next 50 years.

4.3.7 SUMMARY

The social and economic implications of opening new lands to the communities of Northwestern Alberta will be very significant. The economic benefit/cost ratios were estimated to be from 1.63 to 4.47, reflecting the likelihood of an overwhelmingly positive economic benefit to the communities. These ratios were calculated for all communities in general. The benefit would likely be much more positive if the land development is near one or two particular communities.

TABLE 4.3.5

ESTIMATES OF COMMUNITY (ECONOMIC) BENEFIT/COST RATIOS

Time Period	5% Discount Rate	10% Discount Rate	15% Discount Rate
after 1 year	4.47	4.47	4.47
after 10 years	2.20	2.26	2.33
after 20 years	1.88	1.96	2.06
after 50 years	1.63	1.80	1.96

TABLE 4.3.6

ESTIMATES OF NET (ECONOMIC) BENEFIT PER ACRE TO THE COMMUNITIES

Time Period	5% Discount Rate	10% Discount Rate	15% Discount Rate
after 1 year	$150.26	$150.26	$150.26
after 10 years	155.95	121.31	98.19
after 20 years	154.32	98.30	68.45
after 50 years	222.92	115.16	73.31

Source: Woods Gordon (1983)

As an example, if 250,000 acres were developed near a particular established community over 10 years, the net benefit could be in the order of $38,987,500 to the community; the bulk of this benefit being retail and service expenditures, as well as road construction and land clearing. Using our previous assumptions, this amount of land development would mean an increase of approximately 1,000 people in the region and approximately 450 in the community over the 10 years. Therefore, if the land development is spatially isolated in certain areas, some communities will benefit tremendously. On the other hand, these same communities will incur some major costs in developing the community infrastructure and services necessary to accommodate a relatively large influx of new residents (e.g. water and sewage facilities, local roads, social services).

In conclusion, from the reported costs and benefits recorded earlier and the quantitative assessment, it is our estimation that the anticipated benefits to the communities will far outweigh any costs that may occur. To properly develop the new land of Northwestern Alberta, there will be a tremendous amount of human and capital resources. The communities of Northwestern Alberta already have the bulk of these resources (e.g. community services, contractors, business services) needed to accommodate the incremental development of new land. As the land is developed and the rural population expands, the communities will be the support base for these new residents. Therefore, not only will the communities benefit during the development stage (e.g. road building, land clearing, machinery and material sales) but continue to benefit as the new land matures and the regional and community population grows to accommodate for the new found wealth of increased agricultural production.

Woods Gordon

SECTION 4.4

THE POTENTIAL REGIONAL AND PROVINCIAL IMPACT OF DEVELOPING NEW AGRICULTURAL LAND IN NORTHWESTERN ALBERTA

SECTION 4.4

THE POTENTIAL REGIONAL AND PROVINCIAL IMPACT OF DEVELOPING NEW AGRICULTURAL LAND IN NORTHWESTERN ALBERTA

INTRODUCTION

The basic objective of this part of our Report is to compare real on-farm investment costs of new farm development with the real on-farm net income expected after such an investment is made. Expected off-farm real net income generation is also calculated to provide the reader with a better indication of the total benefits and costs involved, excluding the cost of any resulting income losses arising in other sectors of the economy (e.g. the loss of timber stands), as well as any incremental costs to government.

In essence, the methodology involved compares real on-farm investment costs with expected real on-farm net income and "spin-off" net income generated by other sectors of the economy if the agricultural sector actually expands. (This is the so-called "ripple effect" which arises solely because of structural linkages between sectors, excluding a possible secondary "income effect".) In this scenario, an expanding agricultural sector is assumed to be the engine of growth which "drives" (facilitates) expansion in other sectors of the provincial economy.

In an absolute sense, the expected size of these respective benefits and costs can best be compared by looking at their net present value over time. In a relative sense, simply calculating a benefit-cost ratio is appropriate. These criteria are defined as follows:

$$\text{Net Present Value (NPV)} = \text{Sum of Discounted Benefits Over Time } \underline{\text{minus}} \text{ Sum of Discounted Costs Over Time}$$

$$\text{Benefit Cost Ratio (B/C)} = \frac{\text{Sum of Discounted Benefits Over Time}}{\text{Sum of Discounted Costs Over Time}}$$

To be a good (private) investment, for any desired rate-of-return to capital (the interest rate/discount rate), the NPV must be positive and the B/C ratio must exceed 1.0.

The analysis following develops those criteria from two properties:

- on-farm investment costs vs. expected net farm income
- on-farm investment costs vs. expected total private net income generation throughout the provincial economy[1]

4.4.1 ON-FARM INVESTMENT COSTS VERSUS NET FARM INCOME IN THE STUDY AREA

Private investment costs for the farmer are divided into the following:

- undeveloped land
- land clearing
- buildings
- machinery and equipment
- livestock and poultry
- other farm assets

Our farm survey data indicates that these costs for the study area in general would be approximately as follows:

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[1] Excluding potential losses (costs) to other sectors, e.g. timber.

	Cultivated Acre	Total Acre
Undeveloped Land (avg.)	128	80
Land Clearing	200	125
Buildings[1]	44	28
Machinery and Equipment	150	94
Livestock and Poultry	17	11
Other Farm Assets	14	9
TOTAL	$553	$347

This must be invested before any revenue is generated.

4.4.1.1 Farm Production and Revenues in the Study Area

Eighty six percent of agricultural revenues in the study area can be expected to come from crop production. This is the focus of the following analysis.

The net economic revenue expected from crop production is calculated as follows:

Net Value Added (NVA) = Gross Revenue less Production Costs

where:

Gross Revenue = Price X Yield X Acres

Production Costs = Operating Costs plus Depreciation

The Net Value Added (NVA), in this context, is roughly equivalent to the Gross Domestic Product in a national accounting framework. At the farm level, it actually represents a return to all factors of production, namely land, capital, labour and management.

The respective calculations are developed below

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[1] Assumed to represent 10% of the reported value of land and buildings.

4.4.1.2 Gross Revenue

For simplicity, per acre economic gross revenue estimates are desirable. The adjective "economic" refers to the need for long-term prices which will adequately reflect real (i.e. excluding inflation) prices for the next, say, 50 years. The prices developed are real average prices which prevailed during 1972-81 (1982 = 100) and are as follows ($/bus.):

Wheat	$ 6.48
Oats	2.33
Barley	3.64
Canola	9.98
Hay and Forage (tonne)	109.50

These prices are some 30-40% above nominal commodity prices at this point in time (August 1983).

Average yields have been taken directly from the farm survey data and are as follows (bus./acre):

Wheat	30 (26)
Oats	62
Barley	43 (34)
Canola	18 (15)
Hay and Forage (tonnes)	1.6

For the purpose of comparison, average yields according to secondary data sources for the three major crops in CD #15 for the period 1966-81 are provided in brackets.

Supplementary information is also available (via various sources) regarding yield variability (bus./acre):

	Five Year Extremes	3 of 5 Years
Wheat	13-46	25-35 (± 5)
Oats	31-91	52-72 (± 10)
Barley	20-60	37-49 (± 6)
Canola	8-28	15-21 (± 3)
Hay and Forage (tonnes)	1.0-2.2	1.3-1.9 (±0.3)

TABLE 4.4.1

AVERAGE ANNUAL ECONOMIC CROP REVENUE

PER CULTIVATED ACRE, BY ZONE

	Zone 1			Zone 2			Zone 3			Zone 4			TOTAL STUDY AREA		
	Yield	Price	Revenue	Yield	Price	Revenue	Yield	Price	Revenue	Yield	Price	Revenue	Yield	Price	Revenue
Wheat	29	6.48	187.92	26	6.48	168.48	29	6.48	187.92	34	6.48	220.32	30	6.48	194.40
Oats	55	2.33	128.15	53	2.33	123.49	63	2.33	146.79	70	2.33	163.10	62	2.33	144.46
Barley	46	3.64	167.44	35	3.64	127.40	43	3.64	156.52	46	3.64	167.44	43	3.64	156.52
Canola	19	9.98	189.62	20	9.98	199.60	17	9.98	169.66	18	9.98	179.64	18	9.98	179.64
Hay and Forage	1.3	109.50	142.35	1.6	109.50	175.20	1.8	109.50	197.10	1.9	109.50	208.05	1.6	109.50	175.20
Other Crops (a)	--	--	163.10	--	--	158.83	--	--	171.60	--	--	187.71	--	--	170.04
WEIGHTED AVERAGE (b)			114.06			119.94			131.72			168.19			136.86

(a) A simple average of the above five crops.

(b) Also considers summerfallow and the crop mix unique to each Zone.

And then, finally, to calculate a single average revenue estimate per cultivated acre, it is also necessary to know in what proportion the various crops are produced. For the entire study area, this is estimated to be as follows:

Wheat	16.3%
Oats	2.3
Barley	18.9
Canola	13.8
Hay and Forage	17.2
Other	10.2
Summerfallow	21.3
TOTAL	100.0%[1]

The resulting, very basic calculations are provided in Tables 4.4.1 and 4.4.2. Table 4.4.1 tabulates the estimated annual real gross revenue per acre for each study zone. Table 4.4.2 is a simulated five year production sequence (which would be repeated indefinitely) for the study area in general. It is Table 4.4.2 which is employed in the analysis following.

4.4.1.3 Production Costs

Farm production costs refer to all current costs of crop production, plus depreciation.

These costs have been developed from three sources:

- farm survey data (July 1983)
- the 1981 Census of Agriculture
- various cost studies developed by Alberta Agriculture

These data are provided in detail in an accompanying Appendix and are identical to the cost estimates utilized in the Farm Financial Analysis as detailed elsewhere in this Report.

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1. Using 1982 averages.

TABLE 4.4.2

PROJECTED GROSS REVENUE PER CULTIVATED ACRE

SUBJECT TO TYPICAL YIELD FLUCTUATIONS IN THE STUDY AREA, ALL ZONES

Years (a)	Wheat		Oats		Barley		Canola		Hay and Forage		Other Crops (c)	WEIGHTED (b) AVERAGE REVENUE
	Yield	Revenue	Yield	Revenue	Yield	Revenue	Yield	Revenue	Yield	Revenue	Revenue	
1/6/11/16	32	207.36	64	149.12	49	178.36	18	179.64	1.6	175.20	177.94	144.01
2/7/12/17	36	226.80	72	167.76	49	178.36	21	209.58	1.9	208.05	198.11	159.45
3/8/13/18	13	84.24	31	72.23	20	72.80	8	79.84	1.0	109.50	83.72	67.54
4/9/14/19	45	291.60	91	212.03	60	218.40	28	279.44	2.2	240.90	248.47	199.03
5/10/15/20	25	162.00	52	121.16	37	134.68	15	149.70	1.3	142.35	141.98	114.27
AVERAGE	30	194.40	62	144.46	43	156.52	18	179.64	1.6	175.20	170.04	136.86

(a) The series can be repeated indefinitely and the sequence altered in numerous ways.

(b) A simple average of the other five crops.

(c) Also considers summerfallow.

The composite data reflects a crop mix (i.e. land use pattern) which is identical to that utilized to generate the corresponding gross revenue estimates (see above).

The estimated average annual cost of production per cultivated acre for the entire study area are:

Excluding Crop Insurance	$65.15/acre
Including Crop Insurance	$68.90/acre

These are largely invariant with respect to land quality, subject to some variation depending on the type of crops produced, distance from markets, size of operation, and management levels.

Most important, given average land (CLI Classes 3-4), average management, and average marketing costs, this cost structure reflects the technology and input level (e.g. fertilizer) required to produce the expected yields assumed in the preceding.

4.4.1.4 Net Value Added

Expected real annual net farm income can be approximated by estimating the projected annual net value added (NVA).

The projected annual real net value added is calculated as the difference between the projected annual real gross revenue per acre, and projected annual real production costs per acre, as developed in the preceding.

In addition, however, a distinction must be made between four different NVA measures:

- per cultivated acre via crop production
- per acre of all agricultural land via crop production

TABLE 4.4.3

ANNUAL ECONOMIC NET VALUE ADDED PER ACRE FOR AVERAGE YIELDS, BY ZONE

	Crop Production				Total Ag. Production	
Zone	Gross Revenue (1)	Production Costs (a) (2)	NVA (b) (3)	NVA (c) (4)	NVA (d) (5)	NVA (d) (6)
1	114.06	64.17	49.89	33.13	60.11	39.92
2	119.94	67.92	52.02	31.52	58.46	35.42
3	131.72	59.57	72.15	50.07	81.99	56.90
4	168.19	70.20	97.97	54.96	115.26	64.66
TOTAL	136.86	65.15	71.71	44.82	83.38	52.12

(a) Excludes crop insurance premiums.

(b) Column (1) minus Column (2). Represents the net value added per cultivated acre.

(c) Represents the NVA per acre for the total agricultural acreage developed, i.e. also considers unimproved land. The average cultivated proportion per farm for the entire study area is 62.5%.

(d) Includes agricultural revenue which is not derived directly from crop production.

- per cultivated acre via all agriculture - revenue sources
- per acre of all agricultural land from all agricultural revenue sources

This first NVA measure is self explanatory. The second considers all agricultural land and basically assumes that the undeveloped agricultural land in the region will not be developed for crop production because of inherent physical constraints. About 30-40 percent of agricultural land in the study area falls into the category, not unlike many other regions of the province.

The third and forth NVA measure essentially inflate the first two NVA measures to also account for supplementary livestock and poultry production, honey, etc. This amounts to some 11-17 percent of the value of crop production. This methodology implicitly assumes that the "profit" margin for all other agricultural production is, on average, the same as for crop production.

The estimated NVA which is adjusted for both unimproved land (downward) and non-crop farm revenues (upward) is the number considered most appropriate in the analysis which follows.

The various NVA estimates are tabulated in accompanying Tables 4.4.3 and 4.4.4.

4.4.1.5 Development Scenario

Given the preceding unit area, the capital cost and unit value added, the only remaining information which is required involves:

1. The areal extent of the anticipated development, and
2. The anticipated timing of the respective costs and benefits.

With respect to timing, our survey information suggests that the following is the most typical:

TABLE 4.4.4

PROJECTED ECONOMIC NET VALUE ADDED CONSIDERING TYPICAL YIELD FLUCTUATIONS IN THE STUDY AREA, ALL ZONES

	Crop Production				Total Ag. Production	
Production Year (a)	Gross Revenue	Production Costs (b)	NVA (c)	NVA (d)	NVA (e)	NVA (e)
	(1)	(2)	(3)	(4)	(5)	(6)
First	144	65	79	49	92	57
Second	159	65	94	59	109	69
Third	68	65	3	2	3	2
Fourth	199	65	134	84	156	98
Fifth	114	65	49	31	57	36
AVERAGE	137	65	72	45	84	52

(a) A simulated production sequence. In the example following, production begins in Year 3 (the first Production Year) and continues through Year 7. Thereafter, the sequence repeats itself (Year 8 through 12) and so on, indefinitely.

(b) Excludes crop insurance premiums.

(c) Column (1) minus Column (2). Represents the net value added per cultivated acre.

(d) Represents the NVA per acre for the total agricultural acreage developed. I.e. 62.5% of Column (3).

(e) Includes the 16% of agricultural revenue which is not derived directly from crop production (i.e. 116% of Columns (3) and (4) respectively).

Year 1 - Land purchase and major clearing
Year 2 - Minor clearing and all other capital purchases
Year 3 - Farm revenue stream begins

An additional refinement should also include the indexing of the farm NVA estimates during Years 3-6:

Year 3 - 85%
Year 4 - 90%
Year 5 - 95%
Year 6 - 100%

Thereafter, the maximum NVA/acre/annum can be assumed.

Survey information indicates the crops grown on new lands are very similar to those grown on old lands. Thus, this further refinement is not considered in the calculations which follow.

4.4.2 ON-FARM BENEFITS AND COSTS: THE STUDY AREA

The essentials of a benefit-cost analysis are generally well understood.[1] To repeat:

$$B/C = \frac{\text{Sum of Discounted Benefits Over Time}}{\text{Sum of Discounted Costs Over Time}}$$

The net present value is simply the difference between the numerator and the denominator.

"Discounting" is the term used to adjust all dollars to one time-period (e.g. 1983). It is the mirror image of an interest rate. It is the "penalty" applied to money which is not payable/received until some time in the future. If $1 isn't payable for 10 years, its present value is substantially less than $1. Adjusting all future values to their present value (to avoid adding "apples and oranges") is termed "discounting". Historical evidence suggests that the most appropriate real discount rate for agriculture is about 5 percent per annum. The term "real" essen-

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[1] See Appendix A.4 for a more complete discussion.

TABLE 4.4.5

ILLUSTRATIVE ECONOMIC FARM BENEFIT-COST CALCULATION

TO DEVELOP 100,000 ACRES OF CROWN LAND FOR AGRICULTURE ($ Thousands)

	Actual		Discount Factor (5%)	Discounted	
Year	Investment Costs (1)	NVA (2)	(3)	Investment Costs (4)	NVA (5)
1	17,400(a)	--	.9524	16,572	--
2	17,300(b)	--	.9070	15,691	--
3	--	4,845(c)	.8638	--	4,038
4	--	6,210(c)	.8227	--	4,887
5	--	190(c)	.7835	--	--
6	--	9,800(c)	.7462	--	6,734
7	--	3,600	.7107	--	2,416
8	--	5,700	.6768	--	3,722
9	--	6,900	.6446	--	4,254
10	--	200	.6139	--	--
11	--	9,800	.5847	--	5,555
12	9,400	3,600	.5568	5,234	1,893
13-50	(e)	(d)		7,714	48,843
SUMMATION				45,211	82,342

NPV = 82,342 - 45,211 = $37.1 M

$$B/C = \frac{82,342}{45,211} = 1.82$$

(a) Calculated assuming the real cost of major clearing (which excludes farm labour) = $150/acre in the first year. Thus, .625 x 150 = 93.75. Then, assuming Crown Land costs $80/acre, the total = $93.75 + $80 = $174.

(b) Includes additional clearing costs ($50 x .625 = $31.25) plus buildings ($28/acre), plus machinery and equipment ($94/acre), plus livestock and poultry ($11/acre), plus other farm assets ($9/acre). Total = 31.3 + 28 + 94 + 11 + 9 = $173.3/acre. It is mere coincidence that investment levels in Years 1 and 2 are almost identical.

(c) Calculated from Table 5, Column 6. Adjusted for yield increases during Years 3-6. E.g. in Year 3, NVA = 57/acre x 85% x 100,000 acres = $4,845,000.

(d) Approximated using the average NVA/acre/year. (See Table 5, Column 6.)

(e) Includes $12.2 M in Years 22 and 42 (machinery and buildings) and $9.4 M in Year 32 (only machinery).

tially refers to the difference between the nominal interest rate and the rate of inflation.

To appropriately consider the long-run, especially when benefits or costs are "lumpy" or delayed, a very long period of time must also be considered. This appropriate period of time to be considered for a 5 percent discount rate is at least 50 years. Seventy years may be even more appropriate.

These are the essentials. And, in this context, it is useful to then illustrate how all of the above calculations and underlying assumptions translate into a single economic benefit-cost ratio and present value. This only refers to the direct benefits and costs involved.

For illustrative purposes, we first assume that the extent of a hypothetical farm development is 100,000 acres and then generate the implied cost and benefit streams. This procedure and resulting B/C ratio is illustrated in accompanying Table 4.4.5.

Extending this example of a 100,000 acre agricultural development to the entire regional context of an estimated crown land development of 153,740 acres per year for 20 years allows us to gauge the potential area-wide private benefit-cost ratio for the farming community. Table 4.4.6 overleaf presents the potential actual and discounted net value added (benefits) of agricultural production for the region, together with potential actual and discounted costs.

In Year 1 the agricultural community would be operating with a deficit of some $26.8 M. Even by Year 10 benefits (i.e. net value added) would only have accumulated to $200.03 M while costs would have grown to $388.58 M. By Year 20 cumulative benefits to farmers would be $704.31 M, while cumulative costs would amount to $701.9 M. By Year 50 benefits at $1,638.72 M exceed costs at $905.79 M by a considerable margin. This demonstrates the long-term nature of the economic returns to the agricultural sector. The benefit/cost ratios would be as follows:

TABLE 4.4.6

ECONOMIC BENEFIT-COST CALCULATION FOR THE STUDY AREA FARMERS ASSUMING THE TOTAL DEMAND FOR CROWN LAND FOR TWENTY YEARS AS SATISFIED (a)

	BENEFITS TO FARMERS ($M OF NVA)		INVESTMENT COSTS TO FARMERS ($M)	
	Actual (1)	Discounted (5%/yr) (2)	Actual (3)	Discounted (5%/yr) (4)
1	--	--	26.80	26.80
2	--	--	53.44	48.47
3	7.46	6.44	53.44	46.16
4	17.02	14.00	53.44	43.97
5	19.92	15.60	53.44	41.87
6	35.01	26.13	53.44	39.88
7	40.55	28.82	53.44	37.98
8	49.33	33.39	53.44	36.18
9	59.96	38.65	53.44	34.48
10	60.27	37.00	53.44	32.79
11	75.36	44.07	53.44	31.25
12	80.90	44.94	67.91	37.73
13	89.68	47.45	67.91	35.93
14	100.31	50.66	67.91	34.30
15	100.62	48.38	67.91	32.65
16	115.71	53.08	67.91	31.15
17	121.25	52.95	67.91	29.66
18	130.03	53.95	67.91	28.18
19	140.66	55.60	67.91	26.84
20	140.97	53.20	67.91	25.63
21	156.06	55.94	14.47	5.19
22	161.60	55.15	33.26	11.35
23	162.92	53.07	33.26	10.83
24	163.99	50.77	33.26	10.30
25	161.40	47.61	33.26	9.81
26	161.40	45.34	33.26	9.34
27	161.40	43.27	33.26	8.92
28	161.40	41.17	33.26	8.48
29	161.40	39.17	33.26	8.07
30	161.40	37.36	33.26	7.70
31	161.40	35.55	33.26	7.33
32	161.40	33.91	33.26	6.99
33	161.40	32.28	33.26	6.65
34	161.40	30.74	33.26	6.34
35	161.40	29.24	33.26	6.03
36	161.40	27.88	33.26	5.74
37	161.40	26.55	33.26	5.47
38	161.40	25.26	33.26	5.21
39	161.40	24.09	33.26	4.96
40	161.40	22.93	33.26	4.70
41	161.40	21.84	33.26	4.50
42	161.40	20.80	52.00	6.70
43	161.40	19.80	52.00	6.38
44	161.40	18.56	52.00	6.07
45	161.40	17.95	52.00	5.78
46	161.40	17.12	52.00	5.51
47	161.40	16.29	52.00	5.25
48	161.40	15.52	52.00	5.00
49	161.40	14.78	52.00	4.76
50	161.40	14.67	52.00	4.53

NOTES:

(a) Per acre benefits and costs taken directly from Table 6.
(b) For example: Year 3 = $48.45 x 153,740 acres = $7.45 M
Year 4 = $62.10 x 153,740 (2nd year of 1st year development) plus $48.45 x 153,740 (1st year of 2nd year development) = $17 M., Etc.
(c) For example: Year 1 = $17.40 x 153,740 acres = $2.68 M
Year 2 = $17.30 x 153,740 (2nd year of 1st year development) plus $17.40 x 153,740 (1st year of 2nd year development) = $5.34 M., Etc.

Year	B/C Ratio
1	--
10	.51
20	1.0
50	1.81

On a per acre basis the net present value of benefits would be as follows:

Year	$/Acre
1	-$174.32
10	-$122.64
20	+$ 0.78
50	+$238.37

4.4.3 TOTAL ECONOMIC BENEFITS AND COSTS FOR THE STUDY AREA[1]

4.4.3.1 Regional Economic Impact Potential

This potential growth in output from the agricultural base of Northwestern Alberta can be translated into broad estimates of economic impacts on other provincial economic sectors and the overall provincial economy.

Using the Alberta Input-Output tables, general impact estimates have been calculated. These are presented in Table 4.4.7.[2]

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[1] We are addressing private economic benefits. Ignores private "displacement" costs, e.g. loss of timber, wildlife, etc. plus related spin-offs from these respective costs. Also excludes all public costs involved.

[2] Input-output tables trace the linkages between different economic sectors of the economy. They show the dollar transactions between all sectors. Even though only the 1974 tables are available, we do not anticipate significant structural changes between the grain producing sector and most others. This matter has been discussed with Alberta Bureau of Statistics and Alberta Agriculture.

TABLE 4.4.7

DEVELOPMENT OF AGRICULTURAL LANDS IN THE STUDY AREA:
GENERAL ESTIMATES OF POTENTAIL IMPACTS
ON THE PROVINCIAL ECONOMY AND SELECTED ECONOMIC SECTORS

Year	Study Area NVA ($m)[1]	Selected Impacted Economic Sectors ($m) - Province[2]									Total Of All Alberta Sectors(2) ($m)
		Agriculture	Forestry	Meat & Poultry Industries	Miscellaneous Food Industries	Petroleum & Coal Industries	Chemical & Chemical Prod. Ind.	Construction Industry	Transportation & Storage	Wholesale & Retail Trade	
3	6.44	5.180	0.002	0.016	0.311	0.221	0.041	0.169	0.139	0.229	7.318
10	37.0	29.733	0.009	0.089	1.788	1.272	0.235	0.970	0.798	1.317	42.042
20	53.2	42.752	0.013	0.129	2.571	1.829	0.338	1.396	1.148	1.894	60.450
50	14.07	11.307	0.003	0.034	0.680	0.484	0.089	0.369	0.304	0.501	15.987
Cumulative (years 1-50)	1,638.72	1,316.880	0.393	3.961	79.206	56.324	10.404	42.977	36.359	58.352	1,862.046

1. All discounted at 5% per annum to 1983 (Year 1). Taken directly from Table 7, Column 2.

2. The respective multipliers (with respect to the grains sector) which are applied to the Study Area NVA are:

Agriculture	.803603
Forestry	.000240
Meat & Poultry Industries	.002417
Miscellaneous Food Industries	.048334
Petroleum & Coal Industries	.034371
Chemical & Chemical Products	.006349
Construction Industry	.026226
Transportation & Storage	.021577
Trade	.035608
TOTAL	1.136280

Strictly speaking, these should be interpreted as follows: For every $1 increase in the demand for grains from Northwestern Alberta, the spin-off demand in, for example, the Alberta miscellaneous foods sector would also increase by 4.8 cents. Assuming a similar relationship between income changes prevails, these multipliers are applicable.

The validity of using these provincial multipliers is also dependent on numerous other underlying assumptions, the most important of which are that (a) underemployed resources with no opportunity cost exist in other sectors of the economy, (b) the demand for grains from Northwestern Alberta is infinitely elastic, and (c) structural linkages in the Study Area are similar to those in other parts of the province.

Grain production is export oriented (80-90% exported). On the assumption that any expansion of Northwestern Alberta's agricultural base would perpetuate the dominant grain-based agricultural economy of today, the impacts on other sectors of the provincial economy would not be very great. However, the potential expansion (a) should lead to growth in a number of key sectors, (b) bring in export earnings to Alberta and Canada, and (c) raise the potential of further expansion in the manufacturing sector in Alberta (especially in food and farm machinery).

4.4.3.2 Sectoral Economic Potentials

Table 4.4.7 indicates that, based on the technological and economic relationships between Alberta's economic sectors in the 1970's, a $1 expansion in final demand for grain from the Northwest could lead to an overall expansion of $1.136 in the total provincial economy.

The total potential output of $1,638,720,000 (in 1983 dollars) estimated from this study could lead to a cumulative expansion of $1,862,044,700. While the figures are large they do not represent either a major impact on the provincial economy or a major expansion to Alberta's grains production sector. If Alberta was to produce the same amount of grain on an annual basis over the next 50 years as was produced in 1982 (i.e. approximately $1,850,000,000 in value of cash receipts), the cumulative production figure would be some $92,550,000,000. The incremental or new grain production from Northwestern Alberta, as a result of meeting the land demand suggested in this study, would therefore amount to about 2% of the provincial total.

Being so export-oriented, the grains sector in Alberta has only about 66% of its value of production used by other sectors in the economy (i.e. few so-called "forward linkages"). In contrast, Alberta's forestry products sector has over 80% of its value of production consumed by other domestic sectors (e.g. wood industries, agriculture, transportation and storage). On the input side (i.e. so-called "backward linkages") the grains sector, being a primary sector, has three quarters of the value of production contributed by Alberta industries, the primary agricultural industry itself being the dominant one. The forestry sector is equally dominated by Albertan sources for its inputs (over 80%).

As will be seen from Table 4.4.7 the present value of production in, for example, year 10 of $37M could have substantial impacts ($29.7M) in other parts of Alberta's agricultural sector. It is unlikely that it would generate much more than $9,000 extra in the forestry sector, $798,000 in the transportation and storage sector and $1.317M in the wholesale and retail trade sector. Even with the food and beverage industry as Alberta's largest manufacturing industry, the spin-offs here are relatively small. The $37M of grain production generates only $89,000 in the meat and poultry industry and $1.788M in the miscellaneous foods industries.

In contrast, the forestry products sector in Alberta has a significantly higher potential for income and employment spin-offs within the provincial economy. For every $1 expansion in demand for the study area's forestry products (using province-wide relationships), there is a potential expansion of $1.69 in all other economic sectors. This potential impact is 48% greater than that for the grains sector.

On a sector-by-sector basis, for comparison, the forestry products sector could have an impact on the manufacturing sector some 82% larger than the spin-off impacts of the grains sector. The multiplier effect on the wholesale and retail trade sector could be 113% greater. The forestry products sector's impact on the transportation and storage sector could be over five times that of the grains sector's impacts.

A number of comments should be added to the grain production/forestry products comparisons just made. First, we are using mid-1970's economic input-output relationships. We do not believe that there has been such significant change in the structure of the Alberta economy since the early 1970's to invalidate the comparative multipliers used. However, if and as Alberta's population continues to expand, as institutional change (e.g. the Crow Rate) encourages more food processing in Alberta, as Pacific Rim markets are fully exploited, more grain might be retained within Alberta for further processing and value added. This would increase the total income and employment impact of the Northwestern Alberta agricultural land development. A similar scenario, of course, might be constructed for the forestry sector, as residential construction expands and technological developments lead to expanded processing of the vast deciduous resource base in Northwestern Alberta.

A second comment relates to the prospect of a maturing agricultural economy in the region with the growth of more local machinery, engineering, an other farm servicing commercial activities. This is likely over time and should enhance the local income and employment impacts of grain farming in Northwestern Alberta. However, our multipliers are province-wide multipliers and might already exaggerate the regional impact of grain production. The region, like any other region in the province is open. The province on the other hand is a relatively closed system (e.g. in terms of sales tax, income tax). The order of magnitude of the impact that grain farming has on the machinery, fertilizer and other sectors at the provincial level, may not be found in the Northwestern Alberta context. The same cannot be said of the forestry sector because the region has a variety of forestry products industries (e.g. Canfor, Proctor and Gamble, many small sawmill operations). The order of magnitude suggested by provincial forestry production multipliers will therefore, pertain to the Northwestern Alberta setting.

A final comment relates to the potential impact of the production incomes to grain producers and the forestry sector. While we have no firm data to support our suggestions, it is likely that the direct cash income to grain farmers could have, on a dollar for dollar basis, a larger local impact than that going to forestry businesses. While the latter expend substantial sums on salaries and other inputs from the region, part of the forestry sector's income must go as earnings to external investors and in part, to external suppliers of specialized equipment and services. The majority of grain farmers however, are likely to expand a larger part of their return to sales (which is direct income to them alone), on local business and personal services. This will serve to reduce (to what degree we do not know) the significant gap between the economic impact of grain production and forestry products in Northwestern Alberta.

4.4.3.3 Summary

In summary, the potential demand for new agricultural lands suggested by our surveys and research can be translated into a potential for a significant expansion of the study area's agricultural economy. There could be as much as an additional $1.638 billion in expanded production (NVA). This could have spin-offs throughout the Alberta economy amounting to an additional $1.862 billion in new value added.

However, the export orientation of the grains sector, the relatively small Alberta market and the institutional factors (e.g. the Crow Rate) restraining further value added processing in this part of Canada, all militate against a larger beneficial multiplier impact within Alberta in general and within Northwestern Alberta in particular, in contrast to (for example) the forest products sector.

TABLE 4.5.1

SUMMARY OF THE BENEFITS AND COSTS TO THE FARMER AND THE COMMUNITY AS A RESULT OF OPENING-UP 154,000 ACRES OF LAND PER YEAR FOR 20 YEARS FOR AGRICULTURAL PURPOSES

(5% Discount Rate: $M)

Time Period	Estimates of Farmer Benefit/Cost Ratio	Estimates of Community Benefit/Cost Ratio
1	--	4.47
10	.51	2.20
20	1.00	1.88
50	1.81	1.63

TABLE 4.5.2

SUMMARY OF THE DIRECT COSTS AND REVENUE TO THE PROVINCIAL GOVERNMENT AS A RESULT OF OPENING-UP 154,000 ACRES OF LAND PER YEAR FOR AGRICULTURAL PURPOSES

(5% Discount Rate: $M)

Time Period	Total Costs	Total Revenue
1	30.887	10.780
10	352.213	83.754
20	523.967	134.827
50	663.634	--

NOTE: The figures for the Provincial Government only include direct costs and benefits, exclude taxes, etc. Therefore, they are presented as 'total costs' and 'total revenues'.

SECTION 4.5

BENEFIT/COST ASSESSMENT: SUMMARY

SECTION 4.5
BENEFIT/COST ASSESSMENT: SUMMARY

INTRODUCTION

In this section we summarize the cost/benefit assessment of Part IV of this Report. The information that follows is an aggregation of all the detailed information presented previously and is not a substitute for this detail. For a complete itemization and explanation of the findings the reader is referred to full Part IV.

4.5.1 BENEFIT/COST ASSESSMENT

Tables 4.5.1 and 4.5.2 opposite present the cost/benefit (revenue) figures based on the estimated demand for 154,000 acres of land for agriculture per year for 20 years. The cost/benefit (revenue) figures are presented for three of the four components investigated; the farmer, the community, and the provincial government. The provincial and regional economic impact assessment has been reported in a different manner (see Section 4.4).

For the farmer, the benefit/cost ratio indicates that farming will not be beneficial (in strictly economic terms) until year 20. For the community, benefits outweigh costs almost 4.5 to 1 in year 1, indicating that the communities benefit from agriculture land expansion immediately. On the other hand, direct costs outweigh direct benefits to the Provincial Government. Clearly the communities receive the majority of the benefits and the Provincial Government is responsible for the costs. The benefits to the farmer become the largest at year 50, where they surpass the benefits to the community.

The primary reason why it takes from 20-50 years for the farmers to start realizing benefits is due to the large up-front and early capital investments they must incur. At the same time their cash flow is not as healthy as it becomes later on. In terms of cash flow, it is primarily

TABLE 4.5.3

ESTIMATES OF NET (ECONOMIC) BENEFITS AND COSTS AS A RESULT OF OPENING-UP 154,000 ACRES OF LAND PER YEAR FOR 20 YEARS FOR AGRICULTURAL PURPOSES

(5% Discount Rate)

Time Period	Estimates of Net (Economic) Benefit Per Acre to the Farmer	Estimates of Net (Economic) Benefit Per Acre to the Communities
1	-$174.32	+$150.26
10	- 122.68	+ 155.95
20	+ .78	+ 154.32
50	+ 238.37	+ 222.92

TABLE 4.5.4

ESTIMATES OF DIRECT NET (ECONOMIC) COSTS TO THE PROVINCIAL GOVERNMENT

(5% Discount Rate)

Time Period	Benefits
1	-$130.56
10	- 174.32
20	- 126.34
50	- 215.46

for this reason that off-farm employment is so critical to the farmer in his first 20 years of operation.

The reason for the decreasing benefits to the community is related to the relative increases in both the benefit and cost stream. The cost stream increases are larger. However, the absolute economic benefits are more significant which is why the benefit/cost ratio is greater than 1. Even if the benefit and cost streams were to be taken out even further in time, the ratio would always be greater than 1 because the cost stream calculation is a function of the benefit stream (and the relationship is less than 1).

As is noted in Part IV of the Report, the costs to the Provincial Government continue to increase due to the fact that once infrastructure is put in place and staff added to accomodate the potential increase in agricultural land expansion, the infrastructure must be maintained and the staff employed to manage the increases that have occurred. On the direct revenue side, the sale of public lands stops at year 20. The difference between the costs and direct revenues to the Provincial Government would continue to increase as time progressed.

4.5.2 ESTIMATES OF NET (ECONOMIC) BENEFITS AND COSTS PER ACRE

A useful way to perceive the extent of the benefits and costs is to calculate the net benefit or cost per acre for each of the three components assessed (see Tables 4.5.3 and 4.5.4 opposite). This figure indicates the absolute benefit or cost for the three components, which is 'hidden' in the benefit/cost ratio.

As can be seen, the net benefit per acre to the farmer is negative in the first 10 years. When year 20 is reached the net benefit becomes modestly positive, and increases significantly by year 50. This trend and associated figures mirrors the benefit/cost ratio presented earlier.

The net benefit per acre to the community generally increases over time. The largest increase comes between year 20 and 50 largely because some of the costs to the community stop at year 20.

The net cost per acre to the Provincial Government is in a negative position for all time periods assessed. The negative net costs per acre increase up to year 50 (from $130.50 to $215.46). This is because the direct revenue to the Provincial Government, in the form of land sales is always less than the costs. Since the direct revenues stop at year 20, costs to the Government increase faster from years 20 to 50 as shown on the previous table.

APPENDIX A.4.3.1

COMMUNITY INTERVIEW GUIDELINES

APPENDIX A.4.3.1

COMMUNITY INTERVIEW GUIDELINES

The purpose of this interview is to determine and record the impacts that have occurred to date (if any) from opening up new agricultural lands near your community and to also get your opinion on the anticipated costs and benefits of additional land being opened up for agriculture.

Basic Information

Community:
Interviewee(s):
Position(s):
Date:

The Past (What Happened?)

1. Has there been new lands opened up near your community (i.e. 30 mile radius)? How much land?

2. How has the opening of these lands effected your community in terms of the following factors?

   a) Employment (amount, type, etc.)

b) Retail Sales (new store, extended hours, new business types)

c) Housing and Other Construction Projects (amount, value(?))

d) Infrastructure Development (e.g. roads, water, sewage, fire service, ambulance)

e) Recreation Facilities (e.g. arena, playground)

f) General Economic Development (e.g. population growth, economic vitality)

3. Were there any changes to the social environment of your community because of new lands being opened up?

4. Cultural Changes?

5. Environmental Changes? (e.g. natural beauty, pollution, traffic)

6. Political Changes?

7. To what extent, in your view, is the economy of your community dependent upon the development of agriculture in the area?

8. Has agriculture development conflicted with oil and gas development in the area?

9. What problems (if any) to your community occurred because of new land being opened up?

The Future (What Will Happen?)

1. Do you think there could be significant amounts of new land developed near your community?

2. If significant amounts of new land were developed near your community over the next 5-20 years, what would be the anticipated impacts, in your opinion, regarding the following factors?

   a) Population Growth

   b) Employment

   c) Retail Sales

d) Housing Starts and Other Construction Projects

e) Infrastructure Development

f) Schools and the Educational System

g) Recreation Facilities

3. Please indicate any changes or impacts to the following categories you would expect because of new lands being opened up.

a) Social Environment

b) Cultural

c) Environmental

d) Political

4. In your opinion, what is the general attitude of the community with respect to opening up new lands (i.e. favour or disfavour)?

5. What drawbacks or disbenefits do you anticipate from opening up new lands near your community?

6. Are the present community services adequate (Y or N)? What is the present capacity of the following services and what population threshold would have to be met before additional services are needed?

	Adequate	Capacity	Population Threshold
a) Water			
b) Sewage			
c) Waste Disposal			
d) Utilities			
e) Communication (AGT)			
f) Roads			
g) Health Services			
h) Education			
i) Recreation			
j) Police Protection			
k) Fire Protection			

Other Tasks

1. Update Community Profile

2. Obtain all recent data relating to school transfers and general education costs.

3. Other Key Contacts

4. Community Financial Reports (supplement municipal affairs data)

5. Fixing of new lands development in the past?

6. Urban/rural interdependencies - how many farmers living in community?

7. Specific increments to capital costs (i.e. debenture debt for infrastructure development)?

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

- [illegible]

APPENDIX A.4.3.2
ACKNOWLEDGEMENTS

ACKNOWLEDGEMENTS

Fred J. Dumont
Mayor
High Prairie

Jim Craig
I.D. Manager - 17 Central
High Prairie

Rob Martin
I.D. Manager - 21
Peace River

Jim Kincaid
I.D. Manager - 19 & 20
Spirit River

Elaine Reid
Secretary/Treasurer
Spirit River

Verna Block
Mayor
Spirit River

Lee Smithson
Smithson Realty
Spirit River

Glen Christensen
President of Retail Merchant Association
Manning

Don Howden
I.D. Manager - 22 & 17 west
Peace River

Laura Louxlin
Secretary/Treasurer
Manning

Del Harbourne
Mayor
Manning

Duane Dutka
Mayor
Valleyview

Roy Brideau
I.D. Manager - 6
Valleyview

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I.D. 23

Gordon Lundy
Town Administrator
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APPENDIX A.4

COST/BENEFIT ANALYSIS:
AN OVERVIEW

APPENDIX - A.4
COST/BENEFIT ANALYSIS: AN OVERVIEW

INTRODUCTION

In this Appendix, which is applicable to all of Part 4 of our Report, we review some of the basic aspects of cost benefit analysis in order to provide perspective on the application of this particular evaluation methodology to this study. The need for cost/benefit techniques and their role in the decision making processes will be outlined. We will also address questions regarding the scope of analysis and the analytical perspective, which together determine the dimensions of the cost/benefit analysis. Moreover, decisions about the basic approaches to accomplish the analysis as well as the availability of data and the financial and time horizons, are also significant constraints on the scope and depth of the analysis. All of the above factors must be recognized and dealt with in any application of the cost/benefit technique(s).

A.4.1 THE NEED FOR COST/BENEFIT ANALYSIS

The technique of cost/benefit analysis was developed in response to fundamental differences between private investment decision-making and public investment decision-making. Economic theory generally recognizes that the evaluation of investment projects by competitive markets results in project undertakings that contribute to an optimal allocation of economic resources. Most public investment decisions are not subject to that market scrutiny for a variety of reasons.

In some cases, the output of a public investment is not marketable, such as flood protection resulting from the construction of a reservoir. In other cases, the product of the public investment may be marketable but the decision is often made to price that product at some artificially low level to meet objectives other than economic efficiency. Since public investment projects often do result in outputs that are not subject to pricing in markets, it becomes impossible to determine a rate of return related to market activity that can be used as a decision rule.

An additional difficulty arises because public authorities, through taxation, are able to finance projects without reference to the capital markets. Thus, both the investment itself and its means of finance are not subject to market-determined rules for resource allocation.

In the absence of some evaluative process, public investment decisions can be made that result in a sub-optimal resource allocation and a reduction in social well-being. The concept of social well-being suggests that public investment projects could be evaluated on the basis of their net contribution to social welfare. Cost/benefit analysis was developed as a means of making this evaluation by comparing the benefits and costs to society that result from public investment projects. These benefits and costs are usually expressed in monetary terms in order that the trade-off between different objectives can be expressed in consistent numerical terms.

It is generally felt that while economic efficiency (i.e. a benefit/cost ratio equal to or greater than one) is not the ultimate rule for public policies and programmes it should be used as a necessary condition, with other factors making up the sufficient conditions for decision making.

The most widely accepted formulation of the cost/benefit process, is to maximize the present value of all benefits less that of all costs, subject to specified constraints. The results of this process can be expressed as the net present value of benefits, or as a ratio of benefits to costs.

A.4.2 THE ROLE OF COST/BENEFIT ANALYSIS IN DECISION MAKING

The results of a cost/benefit analysis need to be used with considerable caution. The analysis itself is based on many assumptions and approximations to reality that have to be carefully stated and clearly understood.

Usually the valuation of benefits, and often costs, is conducted with estimates that have not been tested by market interaction. Qualifications and limitations suggest that cost/benefit analysis does not provide a decision rule in itself, but only allows the decision maker to determine whether or not society will be better off if the project is undertaken. In their excellent survey of cost/benefit analysis, Prest and Turvey suggest that "cost-benefit analysis as generally understood, is only a technique for taking decisions within a framework which has to be decided upon in advance and which involves a wide range of considerations, many of them of a political or social character".

A.4.3 OTHER ASPECTS OF COST/BENEFIT ANALYSIS

The dimensions of a cost/benefit study depend on the scope of the study, the perspective of the study, the range of alternatives available to solve the problem, and the basic approach to the analysis itself.

A.4.3.1 Scope

In deciding on the scope of the study, the analyst must distinguish between cost/benefit analysis applied in the context of multiple objective planning and that applied to specific undertakings that may have single or multiple purposes.

Multiple objective planning involves the consideration of large developments that satisfy broad social goals including increased national economic efficiency, regional economic development or the redistribution of income within the national economy. Cost/benefit analysis that is related to multiple objective planning will be very broad and complex because of the nature of the benefits and costs that have to be measured. Further, the complexities can be increased by some of the objectives being in conflict (e.g. environmental costs versus employment opportunities).

Where the cost/benefit analysis can be focussed on particular undertakings, even if they are to serve single or multiple purposes, the analysis is likely to be simpler in nature. The benefits to be measured are directly related to the specific purposes of the undertaking.

As an example of a multi-purpose undertaking, consider the development of new agricultural land in Northwestern Alberta, which has specific purposes in terms of farm development, regional economic expansion and opportunity. In this case, the cost/benefit analysis could proceed by examining only those direct and indirect benefits and costs that result from realizing the specific purposes of the undertaking. These benefits and costs would be relevant to farmers, communities and regional economic efficiency and the direct impact of the undertaking would have to be evaluated in all of these contexts. At the level of assessment for this particular project, there need be little attention to national economic development or income redistribution effects.

Clearly, cost/benefit analyses that are undertaken within the framework of multiple objective planning will be more extensive and broader in nature than cost/benefit analysis that refer to specific undertakings in a narrower context. The scope of the study itself will usually depend on the perspective of the analyst and the anticipated end-use of the analysis.

A.4.3.2 Perspective

The perspective taken in a cost/benefit study will depend on the authority carrying out the analysis. The extensive cost/benefit analysis involved in multiple objective planning will usually be carried out by national or provincial authorities which have very broad mandates. On the other hand, local authorities who are concerned with specific undertakings that have clearly identifiable purposes will find that the scope of their analysis is likely to be more narrow. Local authorities are not likely to be concerned with objectives such as the redistribution of income from one class of income earners to another.

A.4.3.3 Consideration of Alternatives

There may be more than one means of meeting defined purposes in a public investment undertaking. The analyst and the planner must examine all possible alternatives for meeting the purposes for two reasons. In the first place, the planner has a responsibility to establish all feasible alternative methods of satisfying the project's goals. If he does not, there is a possibility that the optimum alternative might be missed in the analysis. Secondly, it is possible that with given projects, the only measure of benefits available may be the present value of the total costs for the next least cost alternative. In this case, a failure to spell out all of the alternatives may lead to a mis-statement of the benefits.

Clearly, the greater the range of alternatives, the more extensive the analysis will be. For this Study, there appears to be no viable alternative in meeting the stated purposes (i.e. opening new lands).

A.4.4.4 Approach

The approach adooted by the study team to the cost/benefit study will vary with the data availability and budget constraints controlling the study itself. In developing their approach, the team must answer the following four questions:

1. Which costs and which benefits are to be included?
2. How are they to be valued?
3. At what interest rate are they to be discounted?
4. What are the relevant constraints?

The question of which costs and benefits should be included is an important one. We can distinguish between direct costs and benefits which are the intended result of the undertaking, and indirect or secondary costs and benefits which are not directly associated with the undertaking itself. Certainly all costs and benefits of the first sort must be included in the analysis, but it has to be decided how extensive a coverage of cost and benefits of the second kind is required. Some of these costs and benefits may not be included explicitly, because they are immeasurable.

On the matter of measurability, we can distinguish between four types of cost and benefits:

1. Benefits and costs for which market prices exist and for which these prices correctly reflect social values (e.g. labour wages).
2. Benefits and costs for which market prices exist, but for which the prices fail to reflect appropriate social values, as may be the case for a regulated utility, for instance.
3. Benefits and costs for which no market prices exist, but for which appropriate social values can be approximated in money terms by inferring what consumers would be willing to pay for the product or service if a market existed for it (e.g. recreation resources).
4. Benefits and costs for which it would be difficult to imagine any kind of market-like process capable of registering a meaningful monetary valuation (e.g. for national defence).

The question of how benefits and costs are to be valued depends on measurability. Benefits and costs of the first and second type are obviously the easiest to measure, although with the second type some adjustments will have to be made to bring prices into line with social values. Measurements of benefits and costs of the first and second type will be based on prices that are observed in the marketplace.

The evaluation of benefits and costs of the third and fourth type is much more difficult. For the third type, imputed values involve assumptions that must be clearly drawn and the values themselves may diverge widely from social valuation. This is particularly true of goods which are collectively consumed and for which user charges cannot be assessed. In this case it is to the individual user's advantage to understate his valuation of the good. The imputed values will likely fall short of the true social valuation and benefits will be understated.

There is a growing literature on the treatment of benefits and costs of the fourth kind. These benefits and costs include the so-called intangibles, such as destruction of a unique natural setting, or the creation of some visual amenity. It is important to recognize that a good benefit-cost analysis should not only compare the monetarily measured benefits and costs, but also describe, in whatever terms are feasible, the unmeasurable and non-quantifiable benefits and costs.

The question of which interest rate is to be used for the purposes of discounting benefits and costs is one which continues to generate controversy. We may distinguish between two rates, the marginal social rate of time preference, and the marginal social rate of return from investment. The first has been described as a planning parameter reflecting the feeling of society about providing for the future as opposed to the present; if the future is given more weight, a lower discount rate should be used, and conversely. It has been said that the marginal social rate of time preference need bear no relation to the rates of return in the private sector, interest rates, or any other measurable market phenomena. The second rate measures the opportunity cost of capital and as such represents the pre-tax rate of return foregone on physical investments in the private sector when funds are transferred to the public sector to finance public investment undertakings.

In a perfectly competitive market economy, where all of the conditions for social welfare maximization are met, the two rates are identical. In the real world there are a variety of factors which lead to a divergence between the social rate of time preference and the rate of return from investment.

The existence of this divergence creates problems both in principle and in practice. In principle, the economic conditions describing an efficient allocation of resources over time, and between public and private sector uses, requires that the public sector use a discount rate equal to both the social rate of time preference and the opportunity cost of capital as measured by the social rate of return from investment. A divergence in the rates means that the efficiency rule cannot be applied and suggests that the allocation of resources will be less than efficient from an economic point of view.

An extensive theoretical literature has developed in the past two decades addressing this problem. A dominant theme in this literature has been the attempt to arrive at an "opportunity rate of discount" that lies somewhere between the social rate of time preference and the opportunity cost of capital. This opportunity rate of discount will depend in part on the proportions and the degree to which private investment and private consumption are reduced to finance the public investment and the flexibility that public authorities can exercise in the expenditure of the funds. Evidently, the calculation of the opportunity rate of discount, while theoretically possible, raises severe practical difficulties.

In fact, there has been no widely recognized or accepted calculation of either the social discount rate or the opportunity rate of discount. The usual approach is to specify some range of real discount rates in order to test the sensitivity of the cost-benefit analysis to interest rate changes. Other analysts have suggested that the best resolution of this problem is to take the position that no public project should be undertaken that would generate a rate of return less than the rate of return that would have been experienced had the funds been applied to investment projects in the private sector. This suggests that a market interest rate reflecting the rate of return from investment would be an appropriate rate to use to discount benefits and costs. Our suggestion will be that a range of rates be selected that measures the real discount rate and that allows for a divergence between the social rate of time preference and the opportunity cost of capital.

In some cases the question of how the undertaking is to be financed will have a bearing on the choice of an appropriate discount rate. Local authorities issuing their own debentures to finance public investment projects will have to compete in financial markets for their funds and will likely pay higher interest rates as a result.* Federal governments with their broad taxation powers are able to carry out bond financing at lower rates of interest, because their debt is essentially risk free. Local authorities might select a discount rate for their cost/benefit analysis that is closer to market rates of interest.

In addition to the foregoing conceptual and operational aspects, there are a number of relevant practical constraints such as financial and time constraints. In addition, most cost/benefit analysis are also constrained by the quality and availability of data. Because of this, many of the potential costs and benefits are not expressed numerically.

In the end, cost/benefit analysis is an aid to decision-making. It should be used judicously to supplement other perspectives and inputs. It should never replace judgement and social values.

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* That is their net debenture repayment rate (i.e. making allowance for Provincial interest rate subsidization) will be higher than it might have been, if there were no other bidders for relatively scarce capital resources.

APPENDIX A.4.4

TABLE (A.4.4)-1

COSTS OF CROP PRODUCTION

PER CULTIVATED ACRE, ZONE 1 (HIGH LEVEL)

($1982-83)

Item	Source (1)	Source (2)	Source (3)	Consensus(e)
Seed	4.04	3.19	n.a.	3.62
Fertilizer	10.21	9.58	12.53	10.77
Chemicals	3.80	2.96	1.66	2.81
Insurance	1.35	n.a.	2.95	2.15
Machinery O & M	17.32	13.49	18.08	16.30
Interest on Operating K	3.76	n.a.	.73(b)	3.76
Misc. Overhead	1.86	n.a.	3.35(c)	2.61
Custom Hauling and Other	3.42(a)	6.08	n.a.	4.75
Sub Total	45.76	n.a.	n.a.	46.77
Crop Insurance	3.55(a)	n.a.	n.a.	3.55
Sub Total Including C.I.	49.31	n.a.	n.a.	50.32
Depreciation	19.49	n.a.	15.30(d)	17.40
GRAND TOTAL				
Excluding Crop Insurance	65.25	n.a.	n.a.	64.17
Including Crop Insurance	68.80	n.a.	n.a.	67.72

(a) Calculated independently by MAA, 8/83. Custom work only includes grain transport.
(b) On borrowed capital only. Terms assumed are 14%/annum over six months.
(c) Two thirds of utility costs.
(d) Buildings assumed to represent 10% of value of land and buildings. Straight-line depreciation on buildings (20 years) and machinery/-equipment (10 years) also assumed.
(e) A simple average of existing/comparable data.

Sources:

(1) Alberta Agriculture, A Concensus of Costs and Returns, CRD numbers 243, 244, 245, 246, 248, 249 and 250, Fairview-Edmonton, updated in April 1982. (Represent above-average farmers, i.e. above costs to produce above-average yields.) See accompanying Table.
(2a) Statistics Canada, 1981 Census of Canada, Agriculture, Alberta, Catalogue 96-910, Ottawa, October 1982. (See elsewhere in this report.)
(2b) Alberta Agriculture, Statistics Branch, 1981 Census of Agriculture for Alberta, ID, MD, and County Data by Region, Edmonton, 1982.
(3) MAA/Woods Gordon survey data, July 1983. (See elsewhere in this report.)

TABLE (A.4.4)-2

COSTS OF CROP PRODUCTION

PER CULTIVATED ACRE, ZONE 2 (FT. VERMILION - LA CRETE)

($1982-83)

Item	Source (1)	Source (2)	Source (3)	Consensus(e)
Seed	4.48	3.19	n.a.	3.84
Fertilizer	11.30	9.58	3.63	8.17
Chemicals	4.14	2.96	.42	2.51
Insurance	1.33	n.a.	.97	1.15
Machinery O & M	17.67	13.49	15.40	15.52
Interest on Operating K	4.02	n.a.	.55(b)	4.02
Misc. Overhead	2.07	n.a.	2.94(c)	2.51
Custom Hauling and Other	6.00(a)	6.08	n.a.	6.04
Sub Total	51.01	n.a.	n.a.	43.76
Crop Insurance	4.09(a)	n.a.	n.a.	4.09
Sub Total Including C.I.	55.10	n.a.	n.a.	47.85
Depreciation	19.98	n.a.	28.34(d)	24.16
GRAND TOTAL				
Excluding Crop Insurance	70.99	n.a.	n.a.	67.92
Including Crop Insurance	75.08	n.a.	n.a.	72.01

(a) Calculated independently by MAA, 8/83. Custom work only includes grain transport.
(b) On borrowed capital only. Terms assumed are 14%/annum over six months.
(c) Two thirds of utility costs.
(d) Buildings assumed to represent 10% of value of land and buildings. Straight-line depreciation on buildings (20 years) and machinery/-equipment (10 years) also assumed.
(e) A simple average of existing/comparable data.

Sources:

(1) Alberta Agriculture, A Concensus of Costs and Returns, CRD numbers 243, 244, 245, 246, 248, 249 and 250, Fairview-Edmonton, updated in April 1982. (Represent above-average farmers, i.e. above costs to produce above-average yields.) See accompanying Table.
(2a) Statistics Canada, 1981 Census of Canada, Agriculture, Alberta, Catalogue 96-910, Ottawa, October 1982. (See elsewhere in this report.)
(2b) Alberta Agriculture, Statistics Branch, 1981 Census of Agriculture for Alberta, ID, MD, and County Data by Region, Edmonton, 1982.
(3) MAA/Woods Gordon survey data, July 1983. (See elsewhere in this report.)

TABLE (A.4.4)-3

COSTS OF CROP PRODUCTION

PER CULTIVATED ACRE, ZONE 3 (MANNING - KEG RIVER)
($1982-83)

Item	Source (1)	Source (2)	Source (3)	Consensus(e)
Seed	4.73	2.74	n.a.	3.74
Fertilizer	12.06	13.15	6.14	10.45
Chemicals	3.58	3.71	2.12	3.14
Insurance	1.32	n.a.	1.39	1.36
Machinery O & M	18.62	12.89	12.76	14.76
Interest on Operating K	4.19	n.a.	.76(b)	4.19
Misc. Overhead	2.06	n.a.	1.83(c)	1.95
Custom Hauling and Other	1.02(a)	3.63	n.a.	2.33
Sub Total	47.58	n.a.	n.a.	41.92
Crop Insurance	4.10(a)	n.a.	n.a.	4.10
Sub Total Including C.I.	51.68	n.a.	n.a.	46.02
Depreciation	21.08	n.a.	14.21(d)	17.65
GRAND TOTAL				
Excluding Crop Insurance	68.66	n.a.	n.a.	59.57
Including Crop Insurance	72.76	n.a.	n.a.	63.67

(a) Calculated independently by MAA, 8/83. Custom work only includes grain transport.
(b) On borrowed capital only. Terms assumed are 14%/annum over six months.
(c) Two thirds of utility costs.
(d) Buildings assumed to represent 10% of value of land and buildings. Straight-line depreciation on buildings (20 years) and machinery/-equipment (10 years) also assumed.
(e) A simple average of existing/comparable data.

Sources:

(1) Alberta Agriculture, A Concensus of Costs and Returns, CRD numbers 243, 244, 245, 246, 248, 249 and 250, Fairview-Edmonton, updated in April 1982. (Represent above-average farmers, i.e. above costs to produce above-average yields.) See accompanying Table.
(2a) Statistics Canada, 1981 Census of Canada, Agriculture, Alberta, Catalogue 96-910, Ottawa, October 1982. (See elsewhere in this report.)
(2b) Alberta Agriculture, Statistics Branch, 1981 Census of Agriculture for Alberta, ID, MD, and County Data by Region, Edmonton, 1982.
(3) MAA/Woods Gordon survey data, July 1983. (See elsewhere in this report.)

TABLE (A.4.4)-4

COSTS OF CROP PRODUCTION

PER CULTIVATED ACRE, ZONE 4 (VALLEYVIEW)
($1982-83)

Item	Source (1)	Source (2)	Source (3)	Consensus(e)
Seed	5.41	3.62	n.a.	4.52
Fertilizer	13.02	14.66	6.44	11.37
Chemicals	3.57	4.35	1.76	3.23
Insurance	1.17	n.a.	2.55	1.86
Machinery O & M	18.82	15.87	17.47	17.39
Interest on Operating K	4.41	n.a.	.73(b)	4.41
Misc. Overhead	2.12	n.a.	5.13(c)	3.63
Custom Hauling and Other	3.60(a)	6.59	n.a.	5.10
Sub Total	52.12	n.a.	n.a.	51.51
Crop Insurance	4.20(a)	n.a.	n.a.	4.20
Sub Total Including C.I.	56.32	n.a.	n.a.	55.71
Depreciation	21.59	n.a.	15.82(d)	18.71
GRAND TOTAL				
Excluding Crop Insurance	73.71	n.a.	n.a.	70.22
Including Crop Insurance	77.91	n.a.	n.a.	74.42

(a) Calculated independently by MAA, 8/83. Custom work only includes grain transport.

(b) On borrowed capital only. Terms assumed are 14%/annum over six months.

(c) Two thirds of utility costs.

(d) Buildings assumed to represent 10% of value of land and buildings. Straight-line depreciation on buildings (20 years) and machinery/-equipment (10 years) also assumed.

(e) A simple average of existing/comparable data.

Sources:

(1) Alberta Agriculture, A Concensus of Costs and Returns, CRD numbers 243, 244, 245, 246, 248, 249 and 250, Fairview-Edmonton, updated in April 1982. (Represent above-average farmers, i.e. above costs to produce above-average yields.) See accompanying Table.

(2a) Statistics Canada, 1981 Census of Canada, Agriculture, Alberta, Catalogue 96-910, Ottawa, October 1982. (See elsewhere in this report.)

(2b) Alberta Agriculture, Statistics Branch, 1981 Census of Agriculture for Alberta, ID, MD, and County Data by Region, Edmonton, 1982.

(3) MAA/Woods Gordon survey data, July 1983. (See elsewhere in this report.)

TABLE (A.4.4)-5

COSTS OF CROP PRODUCTION

PER CULTIVATED ACRE, ALL ZONES

($1982-83)

Item	Source (1)	Source (2)	Source (3)	Consensus(e)
Seed	4.65	3.15	n.a.	3.90
Fertilizer	11.36	13.69	6.24	10.43
Chemicals	3.81	4.37	1.49	3.22
Insurance	1.28	n.a.	1.96	1.62
Machinery O & M	17.97	13.80	16.10	15.96
Interest on Operating K	4.06	n.a.	.71(b)	4.06
Misc. Overhead	1.97	n.a.	3.74(c)	2.86
Custom Hauling and Other	3.60(a)	5.25	n.a.	4.43
Sub Total	48.70	n.a.	n.a.	46.48
Crop Insurance	3.75(a)	n.a.	n.a.	3.75
Sub Total Including C.I.	52.45	n.a.	n.a.	50.23
Depreciation	20.31	n.a.	17.03(d)	18.67
GRAND TOTAL				
Excluding Crop Insurance	69.01	n.a.	n.a.	65.15
Including Crop Insurance	72.76	n.a.	n.a.	68.90

(a) Calculated independently by MAA, 8/83. Custom work only includes grain transport.
(b) On borrowed capital only. Terms assumed are 14%/annum over six months.
(c) Two thirds of utility costs.
(d) Buildings assumed to represent 10% of value of land and buildings. Straight-line depreciation on buildings (20 years) and machinery/-equipment (10 years) also assumed.
(e) A simple average of existing/comparable data.

Sources:

(1) Alberta Agriculture, A Concensus of Costs and Returns, CRD numbers 243, 244, 245, 246, 248, 249 and 250, Fairview-Edmonton, updated in April 1982. (Represent above-average farmers, i.e. above costs to produce above-average yields.) See accompanying Table immediately following.
(2a) Statistics Canada, 1981 Census of Canada, Agriculture, Alberta, Catalogue 96-910, Ottawa, October 1982. (See elsewhere in this report.)
(2b) Alberta Agriculture, Statistics Branch, 1981 Census of Agriculture for Alberta, ID, MD, and County Data by Region, Edmonton, 1982.
(3) MAA/Woods Gordon survey data, July 1983. (See elsewhere in this report.)

TABLE (A.4.4)-6

ESTIMATED AVERAGE COSTS OF PRODUCTION FOR CROPS AND CORRESPONDING YIELDS IN NORTHWESTERN ALBERTA ACCORDING TO ALBERTA AGRICULTURE ($1982 per/acre)

Crop	Seed	Fertilizer	Chemicals	Insurance	Machinery O & M	Interest on Operating Cap.	Misc. & Overhead	Sub-Total	Depreciation	Total	Yield (bus./acre)
Wheat	10.34	18.12	7.62	2.25	22.78	6.01	2.75	69.77	24.33	94.10	31
Oats	7.60	22.25	--	--	17.14	4.93	2.46	54.28	28.94	83.22	70
Barley	6.92	17.03	3.65	2.25	24.28	5.39	2.32	61.84	26.91	88.75	45
Canola	3.21	17.54	10.20	3.50	20.99	5.40	3.59	64.43	24.21	88.64	23
Hay and Forage (b)	2.42	3.80	2.38	--	12.68	2.64	.92	24.84	13.68	38.52	n.a.
Other Crops (c)	6.08	16.75	.75	--	19.57	4.07	2.41	49.43	23.61	73.04	--
Summerfallow	--	--	--	--	10.34	1.19	.61	12.14	11.67	23.81	--
WEIGHTED AVERAGE (d)											
Study Zone 1	4.04	10.21	3.80	1.35	17.32	3.76	1.86	42.34	19.49	61.83	
Study Zone 2	4.48	11.30	4.14	1.33	17.67	4.02	2.07	45.01	19.98	64.99	
Study Zone 3	4.73	12.06	3.58	1.32	18.62	4.19	2.06	46.56	21.07	67.63	
Study Zone 4	5.41	13.02	3.57	1.17	18.82	4.41	2.12	48.52	21.59	70.11	
All Zones	4.65	11.36	3.81	1.28	17.97	4.06	1.97	45.10	20.31	65.41	

(a) Excludes custom grain trucking charges.

(b) Considers fescue (3), clover (2) and alfalfa (1).

(c) A simple average of the above five crops.

(d) Weighed according to the crop mix unique to each Zone.

Source:

Alberta Agriculture, A Concensus of Costs and Returns, CDD numbers 243, 244, 245, 246, 248, 249 and 250, Fairview-Edmonton, updated in April 1982. (Represent above-average farmers, i.e. above-average costs to produce above-average yields.)